Access DB# 212485

SEARCH REQUEST FORM

Scientific and Technical Information Center

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If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____

***For Sequence Searches Only** Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

****

STAFF USE ONLY	**Type of Search**	**Vendors and cost where applicable**
Searcher: _____	NA Sequence (#)_____	STN _____
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Date Searcher Picked Up: _____	Bibliographic _____	Dr.Link _____
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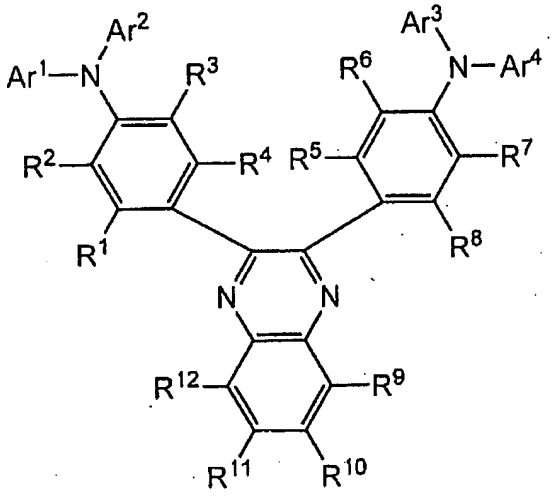
Online Time: _____	Other _____	Other (specify)_____

PTO-1590 (1-2000)

IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A quinoxaline derivative represented by a general formula (1).



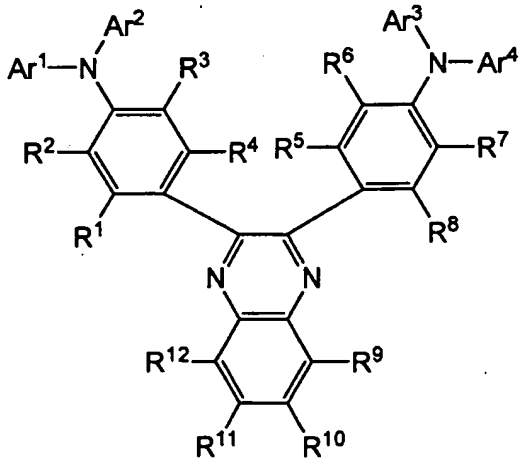
(1)

(In the formula, R^1 - R^{12} each independently represents a hydrogen atom, a halogen atom, a lower alkyl group, an alkoxy group, an acyl group, a nitro group, a cyano group, an amino group, a dialkylamino group, a diarylamino group, a vinyl group, an aryl group, or a heterocyclic residue group; R^9 and R^{10}, R^{10} and R^{11}, and R^{11} and R^{12} are each independent or mutually bonded to form an aromatic ring; Ar^1 - Ar^4 each independently represents an aryl group or a heterocyclic residue group; Ar^1, Ar^2, Ar^3 and Ar^4 are each independent or Ar^1 and Ar^2, and Ar^3 and Ar^4 are respectively mutually bonded directly, or Ar^1 and Ar^2, and Ar^3 and Ar^4 are bonded via oxygen (O), sulfur (S) or a carbonyl group.)

ABSTRACT

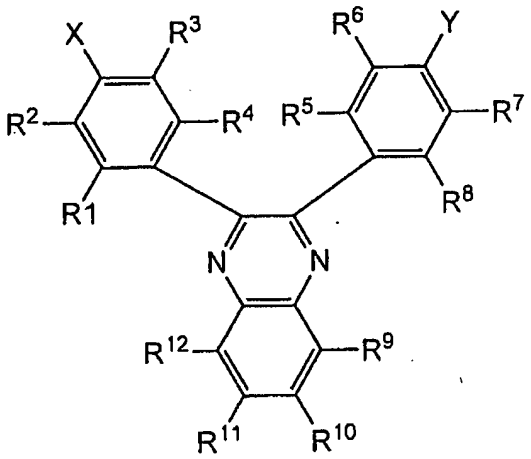
Target is to provide an organic compound material having a bipolar character.

A quinoxaline derivative represented by a general formula (1) is provided. In the formula, R^1 - R^{12} each independently represents a hydrogen atom, a halogen atom, a lower alkyl group, an alkoxy group, an acyl group, a nitro group, a cyano group, an amino group, a dialkylamino group, a diarylamino group, a vinyl group, an aryl group, or a heterocyclic residue group. R^9 and R^{10}, R^{10} and R^{11}, and R^{11} and R^{12} are each independent or respectively mutually bonded to form an aromatic ring. Ar^1 - Ar^4 each independently represents an aryl group or a heterocyclic residue group. Ar^1, Ar^2, Ar^3 and Ar^4 are each independent or Ar^1 and Ar^2, and Ar^3 and Ar^4 are respectively mutually bonded directly, or Ar^1 and Ar^3, and Ar^3 and Ar^4 are bonded via oxygen (O), sulfur (S) or a carbonyl group.



(1)

2. (Original) A quinoxaline derivative represented by a general formula (2).



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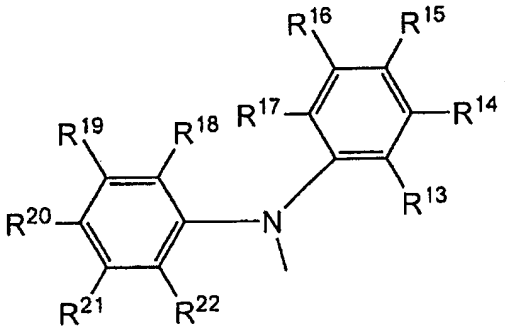

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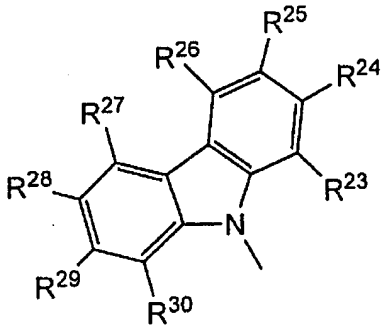

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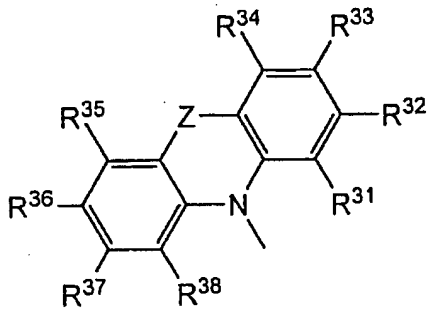
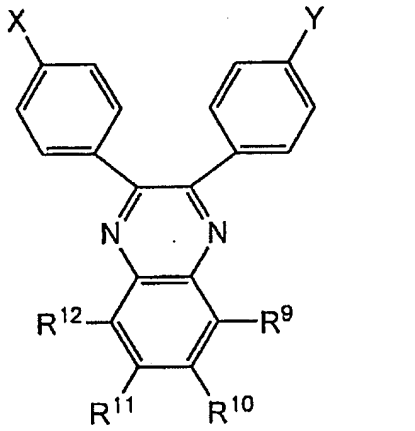


(5)

(In the formula, X and Y each independently represents any of general formulas (3) - (5); R^1 - R^{38} independently represents a hydrogen atom, a halogen atom, a lower alkyl group, an alkoxy group, an acyl group, a nitro group, a cyano group, an amino group, a dialkylamino group, a diarylamino group, a vinyl group, an aryl group, or a heterocyclic residue group; R^9 and R^{10}, R^{10} and R^{11}, and R^{11} and R^{12} are each independent or are mutually bonded to form an aromatic ring; Z represents oxygen (O), sulfur (S) or a carbonyl group.)

3. (Withdrawn) A quinoxaline derivative represented by a general formula (6).



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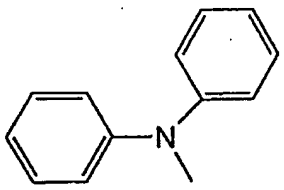

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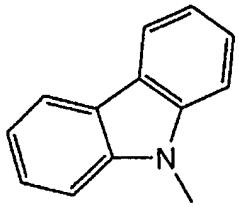

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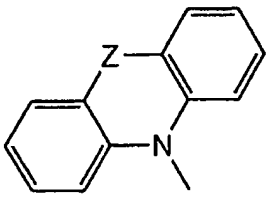
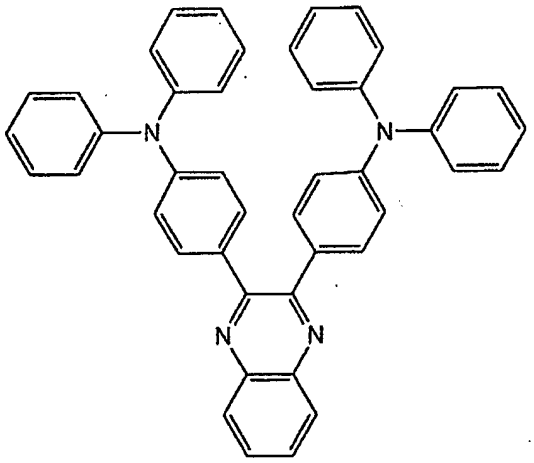


(9)

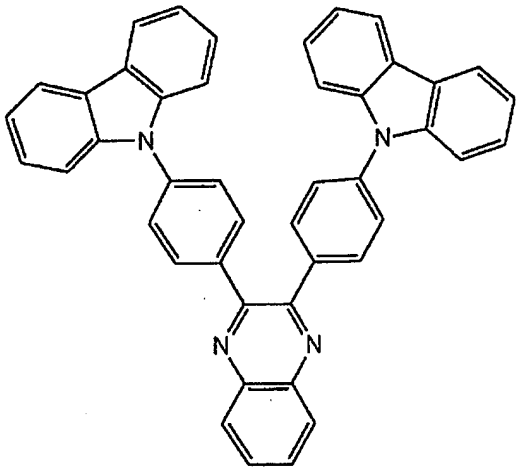
(In the formula, X and Y each is represented by either one of formulas (7) - (8); in the formula, R^9 - R^{12} independently represents a hydrogen atom, a halogen atom, a lower alkyl group, an alkoxy group, an acyl group, a nitro group, a cyano group, an amino group, a dialkylamino group, a diarylamino group, a vinyl group, an aryl group, or a heterocyclic residue group; R^9 and R^{10}, R^{10} and R^{11}, and R^{11} and R^{12} are each independent or mutually bonded to form an aromatic ring; Z represents oxygen (O), sulfur (S) or a carbonyl group.)

4. (Original) A quinoxaline derivative represented by a structural formula (10).



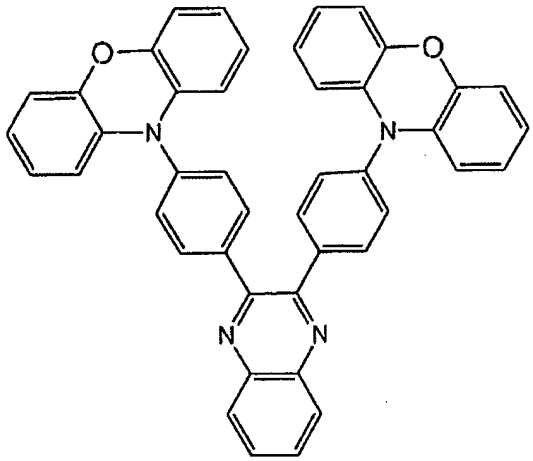
(10)

5. (Withdrawn) A quinoxaline derivative represented by a structural formula (11).



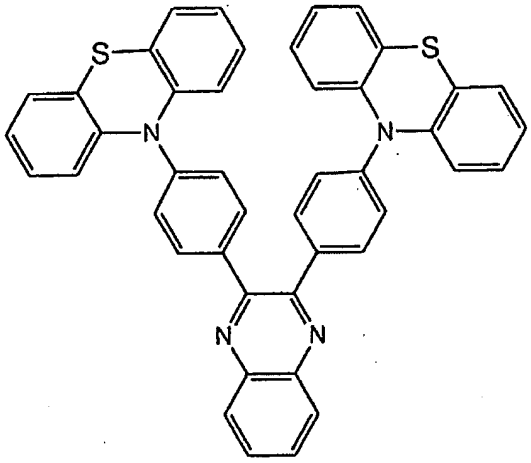
(11)

6. (Withdrawn) A quinoxaline derivative represented by a structural formula (12).



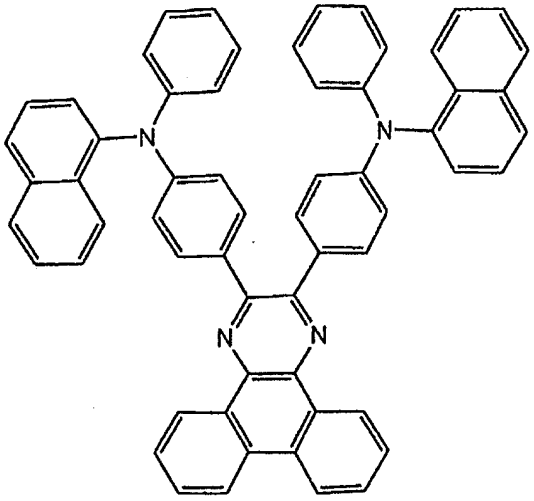
(12)

7. (Withdrawn) A quinoxaline derivative represented by a structural formula (13).



(13)

8. (Withdrawn) A quinoxaline derivative represented by a structural formula (14).



(14)

9. (Currently Amended) An electric field light emitting device further comprising ~~including~~ said quinoxaline derivative according to ~~any one of~~ claims 1 ~~to 8~~,2 and 4, between a pair of electrodes.

10. (Currently Amended) An electric field light emitting device ~~characterized by~~ ~~including~~

comprising a light emitting layer containing said quinoxaline derivative according to ~~any one of~~ claims 1 ~~to 8~~, 2 and 4 and a phosphorescent material showing a light emission from a triplet excited state, between a pair of electrodes.

11. (Currently Amended) An electric field light emitting device according to claim 10, ~~characterized in that~~ wherein a light emission spectrum of said phosphorescent material has a peak from 560 to 700 nm.

12. (Currently Amended) A host material ~~including~~ comprising said quinoxaline derivative according to ~~any one of~~ claims 1 ~~to 8~~, 2 and 4.

13. (Currently Amended) An organic semiconductor device ~~characterized in that~~ , wherein said quinoxaline derivative according to ~~any one of~~ claims 1 ~~to 8~~, 2 and 4 is included in an active layer.

14. (Currently Amended) An electronic device ~~characterized in~~ employing said electric field light emitting device according to claim 10.

15. (Currently amended) An electronic device according to claim 14, ~~characterized in that~~ wherein ~~said~~ the electronic device is any one of a personal computer, a portable telephone and a television receiver.

16. (Currently Amended) An electronic device ~~characterized by~~ further employing said organic semiconductor device according to claim 13.

17. (Currently Amended) An electronic device according to claim 16, ~~characterized in that~~ wherein said electronic device is any one of a personal computer, a portable telephone and a television receiver.

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Bib Data Sheet

CONFIRMATION NO. 1744

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/826,838	04/16/2004 RULE	428	1774	0553-0406

APPLICANTS

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Hiroko Abe, Tokyo, JAPAN;
Ryoji Nomura, Kanagawa, JAPAN;
Satoshi Seo, Kanagawa, JAPAN;

** CONTINUING DATA **********

** FOREIGN APPLICATIONS **********

JAPAN 2003-115102 04/18/2003
JAPAN 2003-302998 08/27/2003

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
** 08/26/2004

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed	☐ yes ☐ no	JAPAN	19	17	8
35 USC 119 (a-d) conditions met	☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature Initials				

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200 WEST ADAMS STREET
CHICAGO, IL60606

TITLE

Quinoxaline derivative, and organic semiconductor device, electric field light emitting device, and electronic device which have the same

FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit
2720		

212485

Banks, Kendra

From: JILL GRAY [jill.gray@uspto.gov]
Sent: Wednesday, January 10, 2007 2:12 PM
To: STIC-EIC1700
Subject: Database Search Request, Serial Number: 10/826,838

Requester:
JILL GRAY (P/1774)
Art Unit:
GROUP ART UNIT 1774
Employee Number:
66983
Office Location:
REM 10A15
Phone Number:
(571)272-1524
Mailbox Number:

Case serial number:
10/826,838
Class / Subclass(es):

Earliest Priority Filing Date:
4/18/03
Format preferred for results:
Paper
Search Topic Information:
Pls search generic Formula (1) - Claim 1;
Pls search generic Formula (2) - claim 2;
Pls search generic Formula (3) - claim 2;
Pls search ELECTED embodiment - claim 4;

Pls search compounds used in EL/light emitting device.
Thanks.
Special Instructions and Other Comments:

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L17          19 S L14 OR L16
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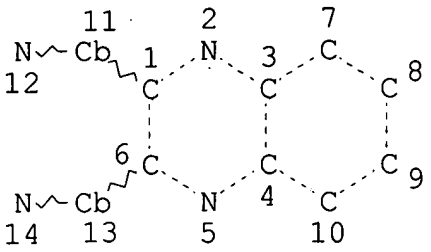

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STEREO ATTRIBUTES: NONE
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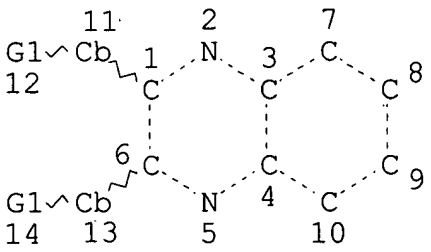

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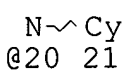

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100.0% PROCESSED 256 ITERATIONS 46 ANSWERS
SEARCH TIME: 00.00.01

=> FILE ZCAPLUS
FILE 'ZCAPLUS' ENTERED AT 11:24:02 ON 17 JAN 2007

=> D L17 1-19 CBIB ABS HITSTR HITRN

L17 ANSWER 1 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2006:1156032 Document No. 145:480151 Light emitting element with a mixed layer including an aromatic hydrocarbon and a metal oxide, light emitting device, and electronic device. Iwaki, Yuji; Seo, Satoshi; Kawakami, Takahiro; Ikeda, Hisao; Sakata, Junichiro (Semiconductor Energy Laboratory Co., Ltd., Japan). PCT Int. Appl. WO 2006115232 A1 20061102, 79pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2006-JP308481 20060417. PRIORITY: JP 2005-124296 20050421.

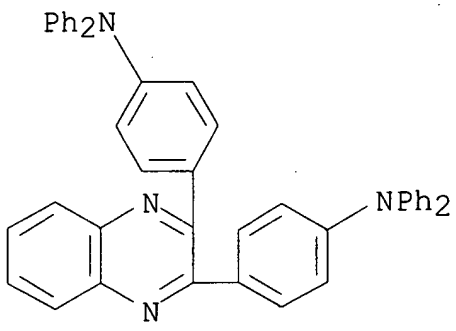
AB One aspect of the present invention is a light emitting element having a layer including an arom. hydrocarbon and a metal oxide between a pair of electrodes. The kind of arom. hydrocarbon is not particularly limited; however, an arom. hydrocarbon having hole mobility of 1 x 10-6 cm2/Vs or more is preferable. Examples of such arom. hydrocarbons are 2-tert-butyl-9,10-di(2-naphthyl)anthracene, anthracene, 9,10-diphenylanthracene, tetracene, rubrene, perylene, and 2,5,8,11-tetra(tert-butyl)perylene. As the metal oxide, a metal which shows an electron-accepting property to the arom. hydrocarbon is preferable, with examples such as molybdenum oxide, vanadium oxide, ruthenium oxide, and rhenium oxide.

IT **787640-67-9 913655-59-1**
(hole-transporting layer; light emitting element with mixed layer including arom. hydrocarbon and metal oxide, light emitting

device, and electronic device)

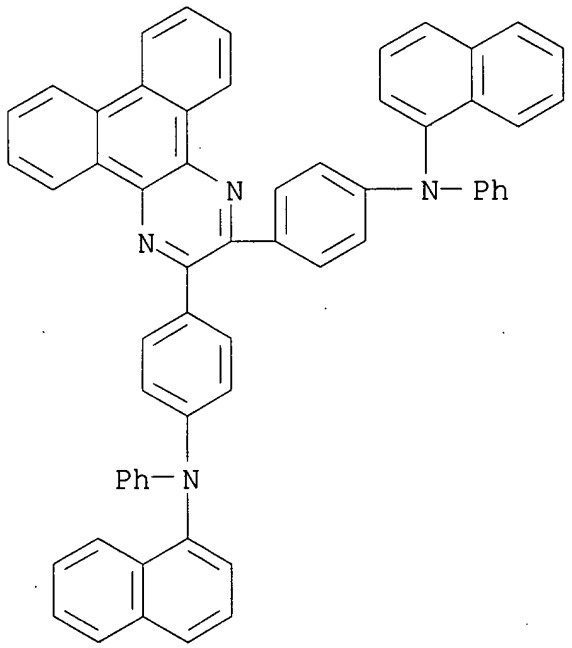
RN 787640-67-9 ZCAPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 913655-59-1 ZCAPLUS

CN 1-Naphthalenamine, N,N'-(dibenzo[f,h]quinoxaline-2,3-diyldi-4,1-phenylene)bis[N-phenyl- (9CI) (CA INDEX NAME)

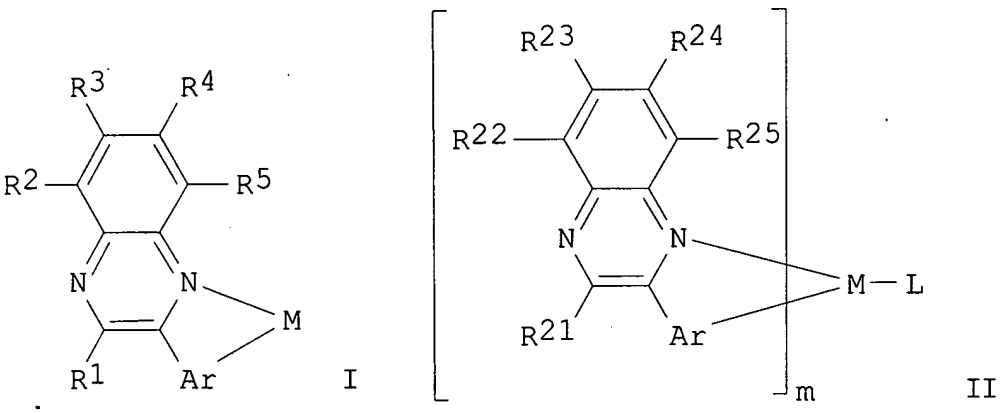


IT **787640-67-9 913655-59-1**

(hole-transporting layer; light emitting element with mixed layer including arom. hydrocarbon and metal oxide, light emitting device, and electronic device)

L17 ANSWER 2 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2006:564313 Document No. 145:53427 Group 9 or 10 metal complexes, electroluminescent devices having layer containing them, and use of the devices. Inoue, Eiko; Seo, Satoshi; Shimogaki, Tomoko; Abe, Hiroko (Semiconductor Energy Laboratory Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2006151887 A 20060615, 67 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-346234 20041130.

GI

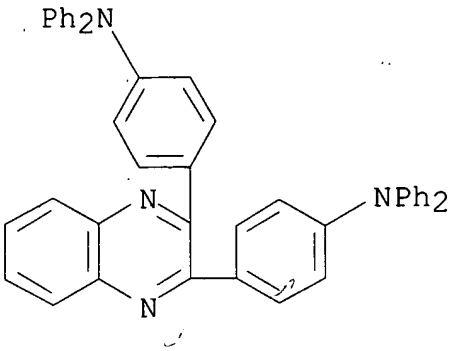


AB The complexes are represented by I (R1-R5 = H, halo, acyl, alkyl, alkoxy, aryl, cyano, heterocyclyl; Ar = aryl, heterocyclyl; M = group 9 or 10 element) or II (R21-R25 = any group given for R1-R5; Ar, M = same as above; n = 1 when M = group 10 element or 2 when M = group 9 element; L = monoanionic ligand having β-diketone structure, monoanionic bidentate ligand contg. carboxy group or phenolic OH). Also claimed are electroluminescent app. having the electroluminescent devices and electronic instruments having the app. in the display. I or II emit phosphorescence and are also useful as sensitizers for fluorescent compds.

IT **787640-67-9P**
(prepn. of group 9 or 10 metal arylquinoxaline complexes emitting phosphorescence and electroluminescent devices using them)

RN 787640-67-9 ZCAPLUS

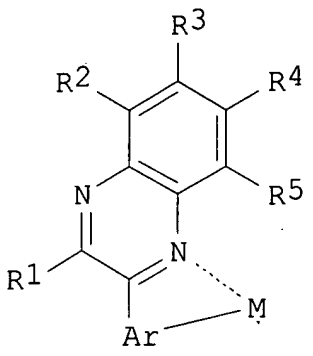
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



IT **787640-67-9P**
(prepn. of group 9 or 10 metal arylquinoxaline complexes emitting phosphorescence and electroluminescent devices using them)

L17 ANSWER 3 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2006:544401 Document No. 145:53407 A phosphorescent organometallic complex for use as a light-emitting element having good chromaticity for light-emitting devices. Inoue, Hideko; Seo, Satoshi; Ohsawa, Nobuharu (Semiconductor Energy Laboratory Co., Ltd., Japan). PCT Int. Appl. WO 2006059802 A1 20060608, 139 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2005-JP22593 20051201. PRIORITY: JP 2004-351770 20041203.

GI



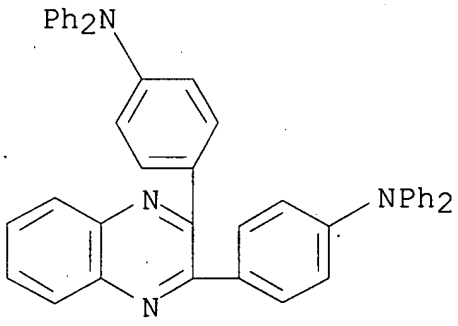
I

AB A phosphorescent organometallic complex is described for use as a light-emitting element having good chromaticity for light-emitting devices. Thus, the organometallic complex includes a structure I (R1 = C1-4 alkyl; R2-R5 = H, halogen, acyl, alkyl, alkoxyl, aryl, CN, heterocycle; Ar = aryl, heterocycle, preferably, an aryl group has an electron withdrawing group or a heterocyclic group has an electron withdrawing group; M = Group 9- or Group 10 element).

IT **787640-67-9**
(characterization of light-emitting devices contg. phosphorescent organometallic complexes)

RN 787640-67-9 ZCAPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



IT **787640-67-9**
(characterization of light-emitting devices contg. phosphorescent organometallic complexes)

L17 ANSWER 4 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

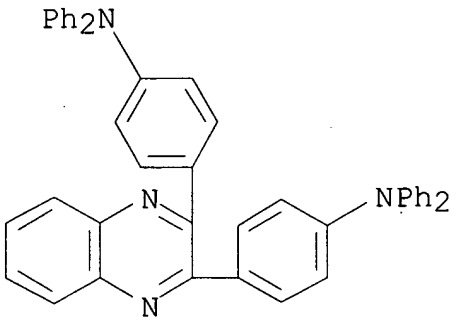
2006:481507 Document No. 145:396961 Fluorescence Study of Dehydroabietic Acid-Based Bipolar Arylamine-Quinoxalines. Burrows, H. D.; Fonseca, S. M.; Gigante, B.; Esteves, M. A.; Guerreiro, A. M. (Departamento de Quimica, Universidade de Coimbra, Coimbra, 3004-535, Port.). Journal of Fluorescence, 16(2), 227-231 (English) 2006. CODEN: JOFLEN. ISSN: 1053-0509. Publisher: Springer.

AB The absorption and fluorescence spectra, lifetimes and quantum yields of a series of triarylaminequinoxaline bipolar compds., with and without the bulky dehydroabietic acid group, have been studied in toluene soln. This bulky group is introduced to improve soly. and thermal properties of these systems. It is shown that this does not affect their spectral or photophys. behavior. The compds. show relatively strong fluorescence, with the emission max. strongly dependent upon the substituents present. Oxidn. potentials have also been detd. in acetonitrile soln., and again indicate that introduction of the resin acid moiety has no effect on these properties.

IT **787640-67-9 911303-76-9 911303-77-0 911303-78-1 911303-79-2 911303-80-5 911303-81-6 911303-82-7**
(fluorescence study of dehydroabietic acid-based bipolar arylamine-quinoxalines)

RN 787640-67-9 ZCAPLUS

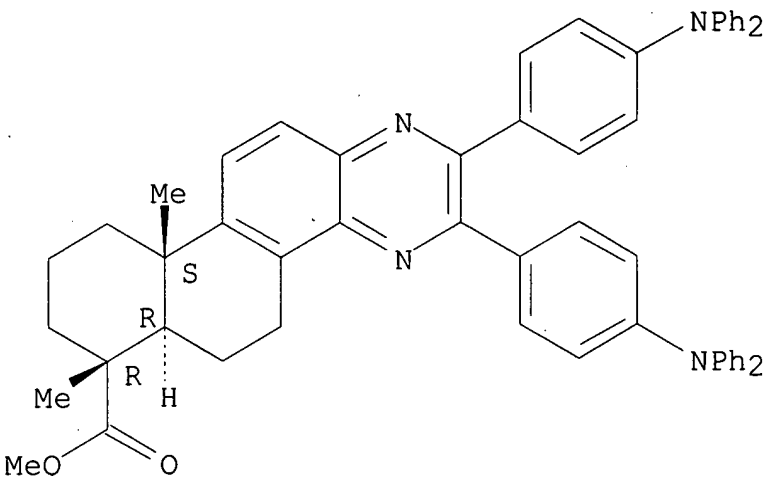
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 911303-76-9 ZCAPLUS

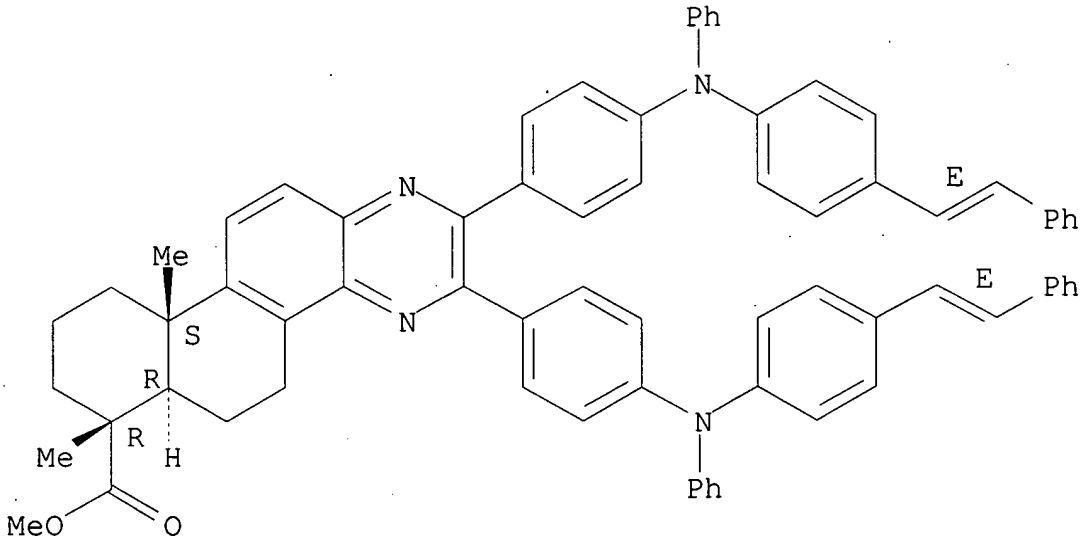
CN Naphtho[2,1-f]quinoxaline-7-carboxylic acid, 2,3-bis[4-(diphenylamino)phenyl]-5,6,6a,7,8,9,10,10a-octahydro-7,10a-dimethyl-, methyl ester, (6aR,7R,10aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 911303-77-0 ZCAPLUS
CN Naphtho[2,1-f]quinoxaline-7-carboxylic acid, 5,6,6a,7,8,9,10,10a-octahydro-7,10a-dimethyl-2,3-bis[4-[phenyl[4-[(1E)-2-phenylethenyl]phenyl]amino]phenyl]-, methyl ester, (6aR,7R,10aS)-(9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry as shown.

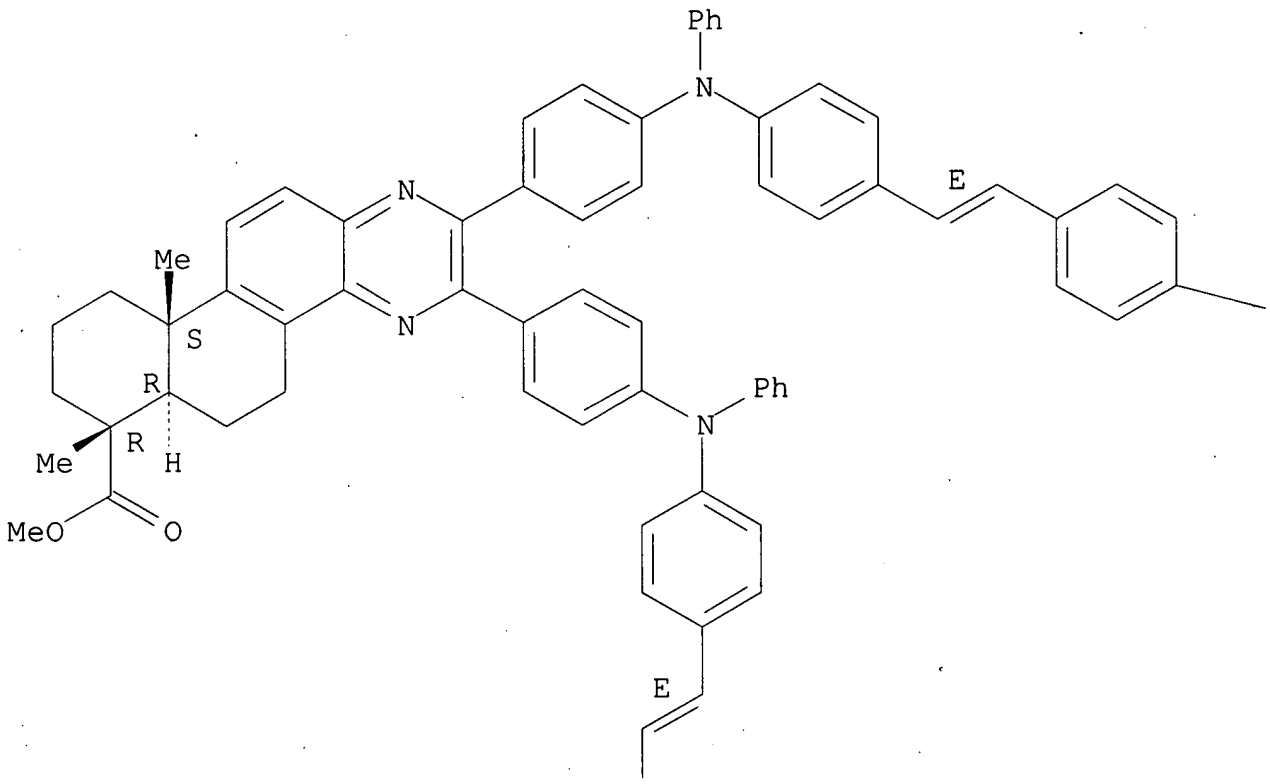


RN 911303-78-1 ZCAPLUS
CN Naphtho[2,1-f]quinoxaline-7-carboxylic acid, 5,6,6a,7,8,9,10,10a-octahydro-2,3-bis[4-[[4-[(1E)-2-(4-methoxyphenyl)ethenyl]phenyl]phenylamino]phenyl]-7,10a-dimethyl-, methyl ester, (6aR,7R,10aS)- (9CI)

(CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry as shown.

PAGE 1-A



PAGE 1-B

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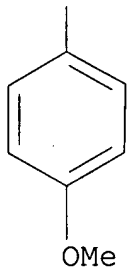
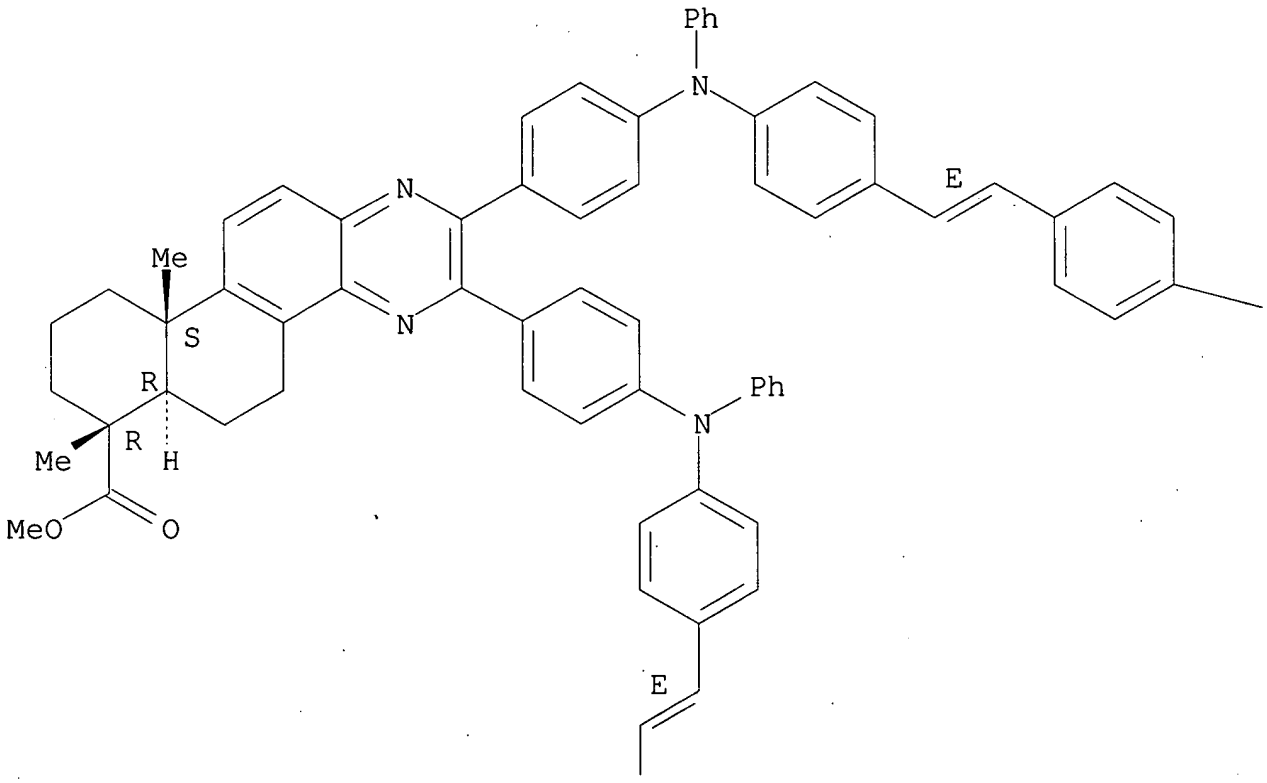
PAGE 2-A



RN 911303-79-2 ZCAPLUS
CN Naphtho[2,1-f]quinoxaline-7-carboxylic acid, 5,6,6a,7,8,9,10,10a-octahydro-7,10a-dimethyl-2,3-bis[4-[[4-[(1E)-2-(4-nitrophenyl)ethenyl]phenyl]phenylamino]phenyl]-, methyl ester, (6aR,7R,10aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry as shown.

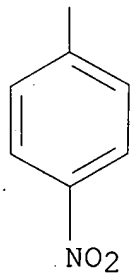
PAGE 1-A



PAGE 1-B

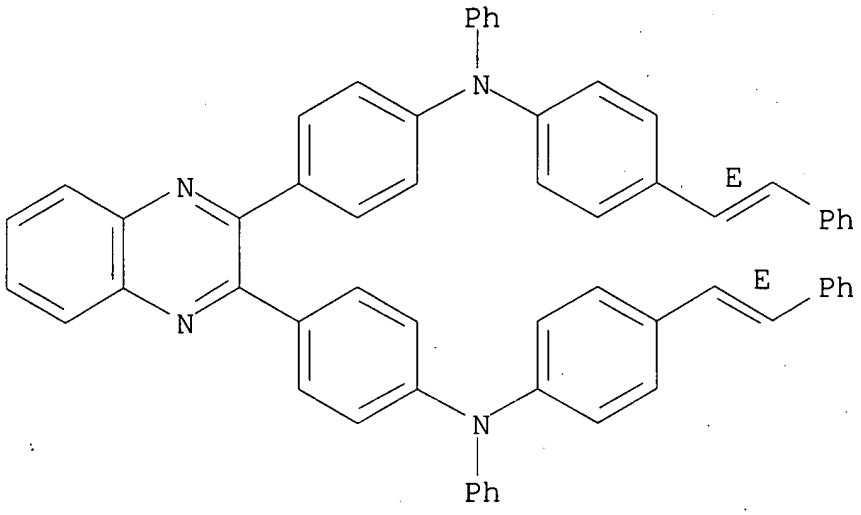
NO_2

PAGE 2-A



RN 911303-80-5 ZCAPLUS
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N-phenyl-N-[4-[(1E)-2-phenylethenyl]phenyl]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

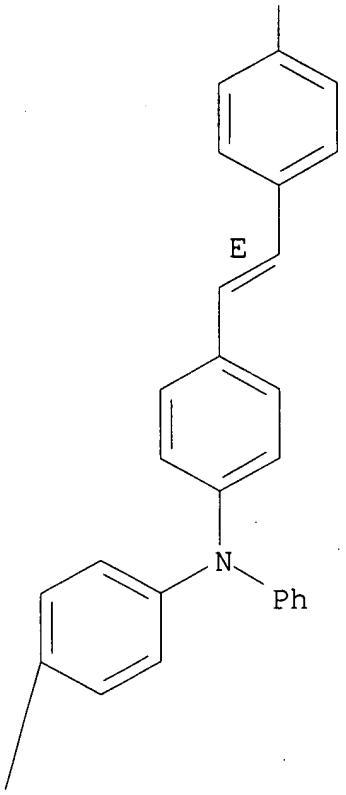


RN 911303-81-6 ZCAPLUS
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N-[4-[(1E)-2-(4-methoxyphenyl)ethenyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)

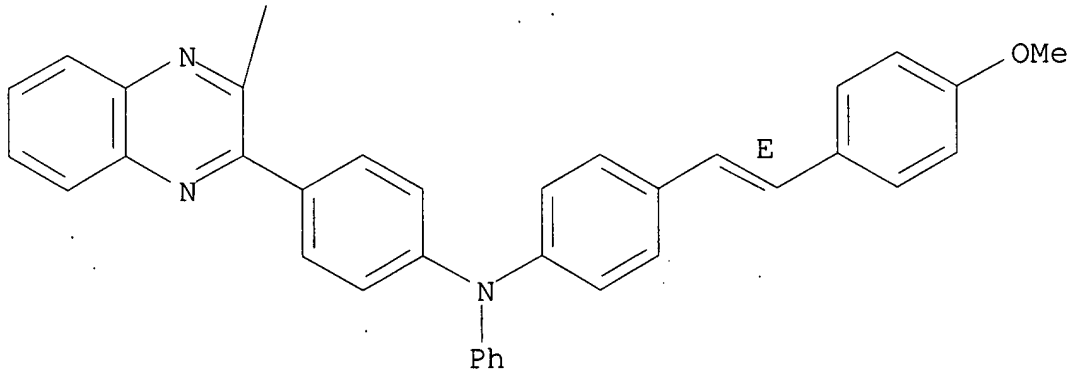
Double bond geometry as shown.

PAGE 1-A

PAGE 2-A



PAGE 3-A

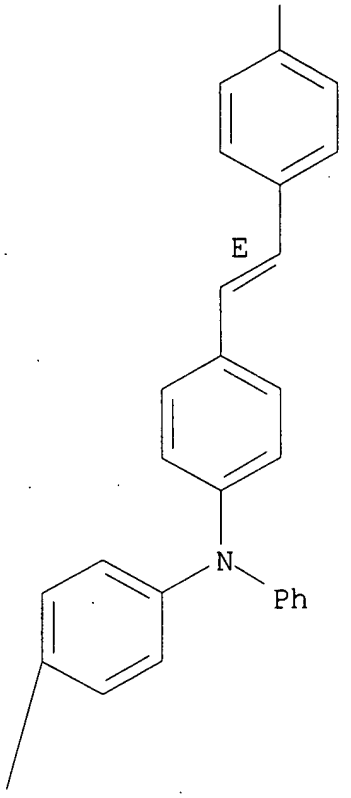


RN 911303-82-7 ZCAPLUS
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N-[4-[(1E)-2-(4-nitrophenyl)ethenyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)

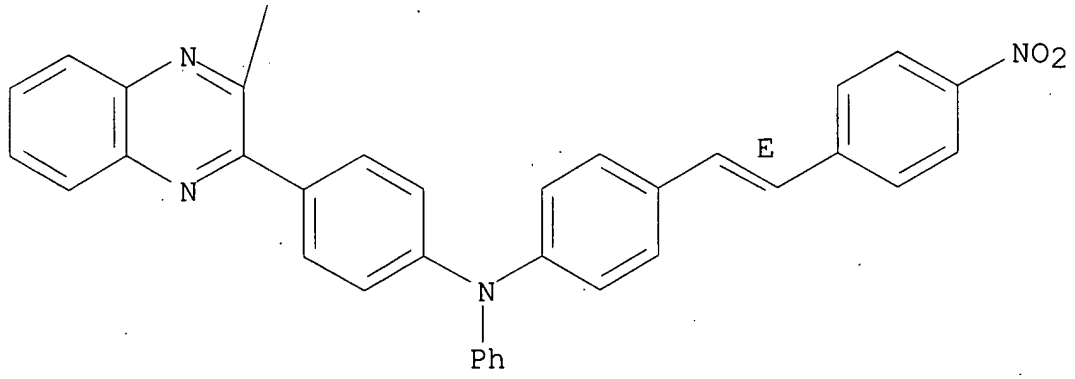
Double bond geometry as shown.

PAGE 1-A

PAGE 2-A



PAGE 3-A



IT **787640-67-9 911303-76-9 911303-77-0 911303-78-1 911303-79-2 911303-80-5 911303-81-6 911303-82-7**
(fluorescence study of dehydroabietic acid-based bipolar

arylamine-quinoxalines)

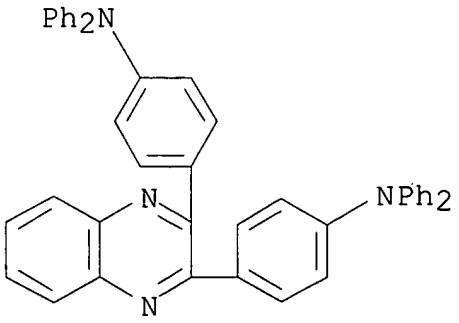
L17 ANSWER 5 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2006:437747 Document No. 144:458225 Light-emitting element and light emitting device using the same. Kumaki, Daisuke; Seo, Satoshi (Semiconductor Energy Laboratory Co., Ltd., Japan). PCT Int. Appl. WO 2006049323 A1 20060511, 90 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2005-JP20663 20051104. PRIORITY: JP 2004-322995 20041105.

AB Light-emitting elements comprising (in order) a first electrode, a first layer (or first region), a second layer (or second region), a layer contg. a light-emitting material, and a second electrode are described in which the first layers includes an arom. amine compd. and a first substance that can act as an electron acceptor to the arom. amine compd. and the second layer includes a second substance which is a better electron transporter than a hole transporter, and a third substance showing an electron donating property to the second substance. The third substance may be an alkali metal oxide or an alk. earth metal oxide. Displays employing the elements (and devices incorporating the displays) are also described.

IT **787640-67-9**
(org. light-emitting device structures using mixed material layers)

RN 787640-67-9 ZCAPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



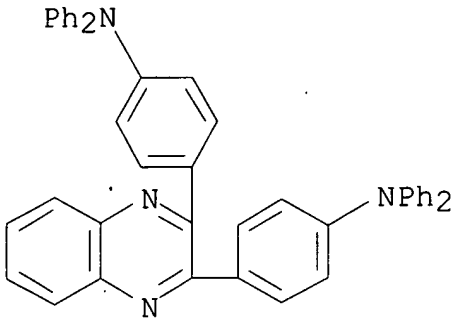
IT **787640-67-9**
(org. light-emitting device structures using mixed material layers)

✓ L17 ANSWER 6 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN ✶
2006:437531 Document No. 144:458222 Light emitting element and light emitting device using the same. Kumaki, Daisuke; Seo, Satoshi (Semiconductor Energy Laboratory Co., Ltd., Japan). PCT Int. Appl. WO 2006049334 A1 20060511, 83 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2005-JP20687 20051104. PRIORITY: JP 2004-322996 20041105; JP 2004-342323 20041126.

AB Light-emitting elements comprising (in order) a first electrode, a first layer (or first region), a second layer (or second region), a layer contg. a light emitting material, and a second electrode are described in which the first and second layers or regions comprise a bipolar material (e.g., a material having a hole mobility/electron mobility or electron mobility/hole mobility ratio ≤100), which may be the same or different in each layer, with, in the first layer (or region) a substance exhibiting an electron accepting ability with respect to the bipolar substance and, in the second layer or region, a substance exhibiting an electron donating ability with respect to the bipolar substance. Preferably, the bipolar material is a quinoxaline deriv. or bisquinoxaline deriv. The thicknesses of the layers may be selected to satisfy a relation that is provided. Displays employing the elements (and devices incorporating the displays) are also described.

IT **787640-67-9P**
(light-emitting devices using bipolar materials in electron-injection structures and displays using them)

RN 787640-67-9 ZCAPLUS
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



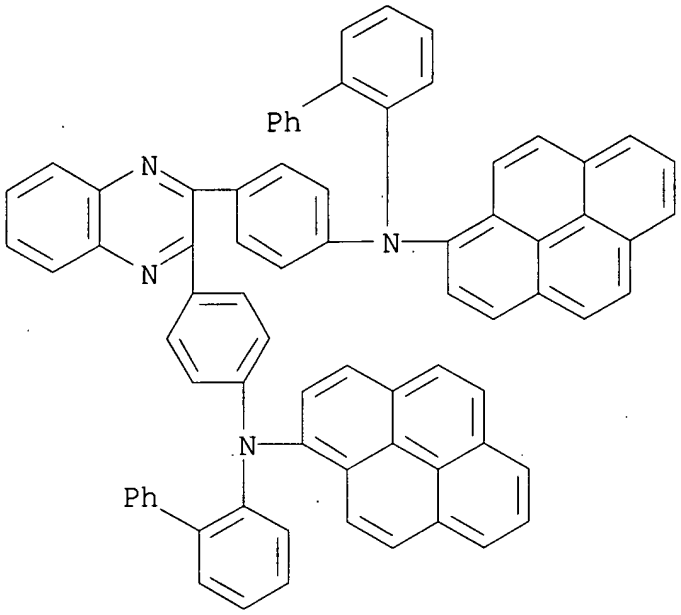
IT **787640-67-9P**
(light-emitting devices using bipolar materials in electron-injection structures and displays using them)

L17 ANSWER 7 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2006:393159 Document No. 145:356295 Quinoxalines incorporating triarylamines: dipolar electroluminescent materials with tunable emission characteristics. Huang, Tai-Hsiang; Whang, Wha-Tzong; Zheng, He-Gen; Lin, Jiann T'suen (Department of Materials Science and Engineering, National Chiao Tung University, Hsin Chu, 300, Taiwan). Journal of the Chinese Chemical Society (Taipei, Taiwan), 53(1), 233-242 (English) 2006. CODEN: JCCTAC. ISSN: 0009-4536. Publisher: Chinese Chemical Society.

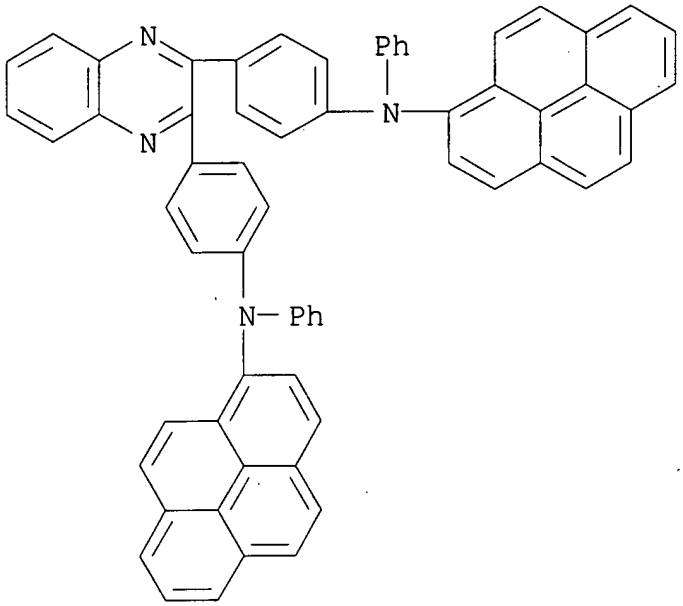
AB Dipolar compds. (abbreviated as QuPy) featuring quinoxaline acceptors and diarylamine or triarylamine donors were prepd. via palladium-catalyzed C-N or C-C bond formation in good yields. They possess high thermal stability with a high decompn. temp. (Td > 400 °C) and exhibit no cryst. character. The emission colors of the materials vary from green to orange red and are dependent on the nature of the electron-withdrawing segments and solvents. Two types of double-layer org. light-emitting diodes (OLEDs) were constructed using these dipolar compds. as hole-transporting/emitting layers and TPBI or Alq3 as an electron-transporting layer: (I) ITO/QuPy/Alq3/Mg:Ag and (II) ITO/QuPy/TPBI/Mg:Ag (TPBI = 1,3,5-tris(N-phenylbenzimidazol-2-yl)-benzene; Alq3 = 1,3,5-tris(N-phenylbenzimidazol-2-yl)-benzene). The recombination zone in most of those devices were confined in the quinoxaline layers. The green to orange colors in these devices correspond well with the film PL of the material used. The relation between the energy levels of the compds. and the performance of the light-emitting diode are discussed.

IT **910563-08-5P 910563-10-9P**
(quinoxalines incorporating triarylamines as dipolar electroluminescent materials with tunable emission characteristics)

RN 910563-08-5 ZCAPLUS
CN 1-Pyrenamine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[N-[1,1'-biphenyl]-2-yl- (9CI) (CA INDEX NAME)



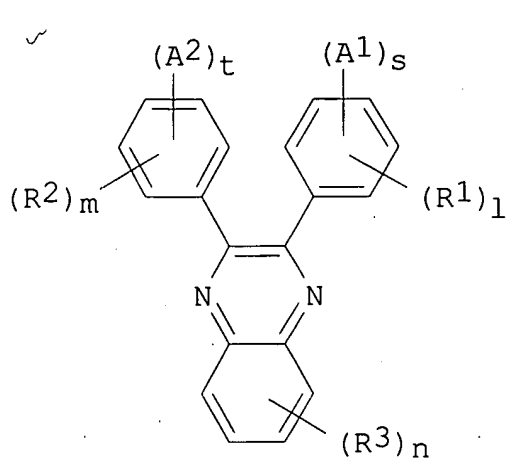
RN 910563-10-9 ZCAPLUS
CN 1-Pyrenamine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[N-phenyl- (9CI) (CA INDEX NAME)



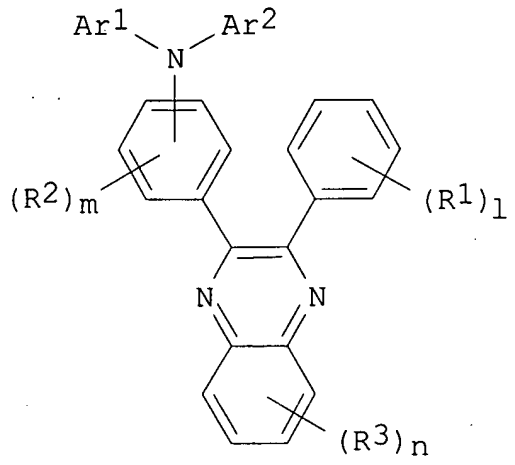
IT **910563-08-5P 910563-10-9P**
(quinoxalines incorporating triarylamines as dipolar electroluminescent materials with tunable emission characteristics)

L17 ANSWER 8 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2006:50981 Document No. 144:117548 Organic electroluminescent devices with high luminosity and long lifetime and amines therefor. Totani, Yoshiyuki; Tanabe, Yoshimitsu; Ochi, Takahiko; Tsukada, Hidetaka; Shimamura, Takehiko (Mitsui Chemicals Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2006016384 A 20060119, 64 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2005-159559 20050531. PRIORITY: JP 2004-165607 20040603.

GI



I



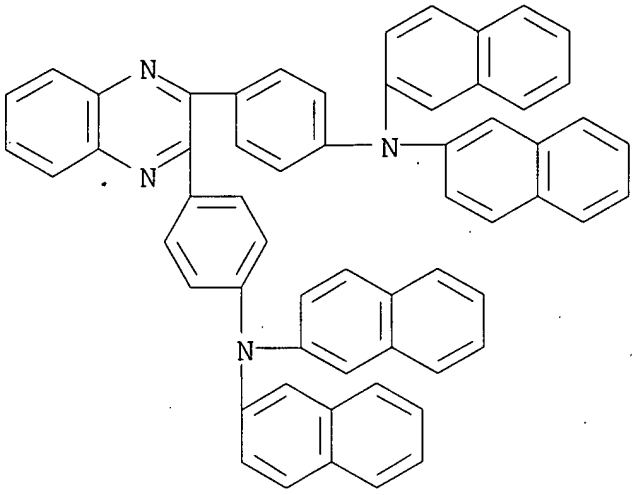
II

AB The amines are I [R1-R3 = halo, amino, Xn'Z (Z = linear, branched, or cyclic alkyl, aryl, aralkyl; X = O, S; n' = 0, 1); l, m, n = 0-4; A1, A2 = Ar1Ar2N (Ar1, Ar2 = aryl, linear, branched, or cyclic alkyl, aralkyl); s, t = 0-5; s + l ≤5; t + m ≤5; s and/or t ≥1] or II [R1, R2 = halo, Xn'Z (Z, X, n' = same as above); R3 = halo, amino, Xn'Z (Z, X, n' = same as above); l, m, n = 0-4; Ar1, Ar2 = same as above]. Also claimed are org. EL devices (e.g., LCD backlight, planar light sources) having the amines between a pair of electrodes.

IT **873000-37-4**
(substituted 2,3-diphenylquinoxalines for org. electroluminescent devices with high luminosity and long lifetime)

RN 873000-37-4 ZCAPLUS

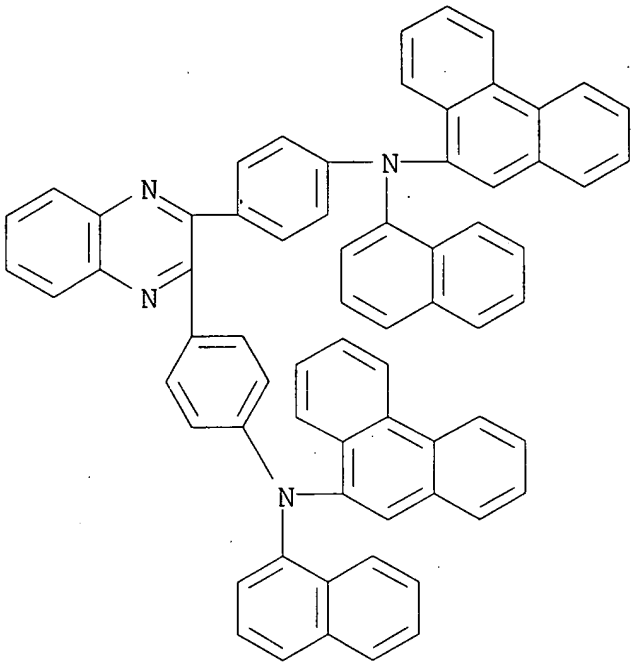
CN 2-Naphthalenamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis[N-2-naphthalenyl- (9CI) (CA INDEX NAME)



IT **873000-35-2P 873000-36-3P 873000-38-5P 873000-39-6P 873000-40-9P 873000-41-0P 873000-42-1P**
(substituted 2,3-diphenylquinoxalines for org. electroluminescent devices with high luminosity and long lifetime)

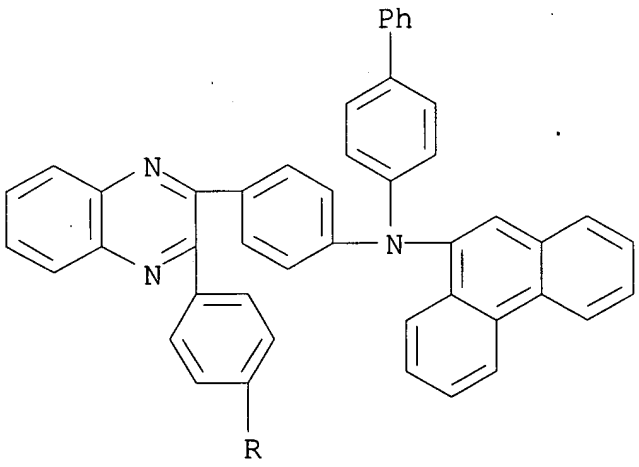
RN 873000-35-2 ZCAPLUS

CN 9-Phenanthrenamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis[N-1-naphthalenyl- (9CI) (CA INDEX NAME)

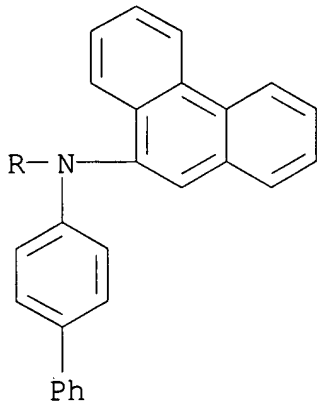


RN 873000-36-3 ZCAPLUS
CN 9-Phenanthrenamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis[N-[1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)

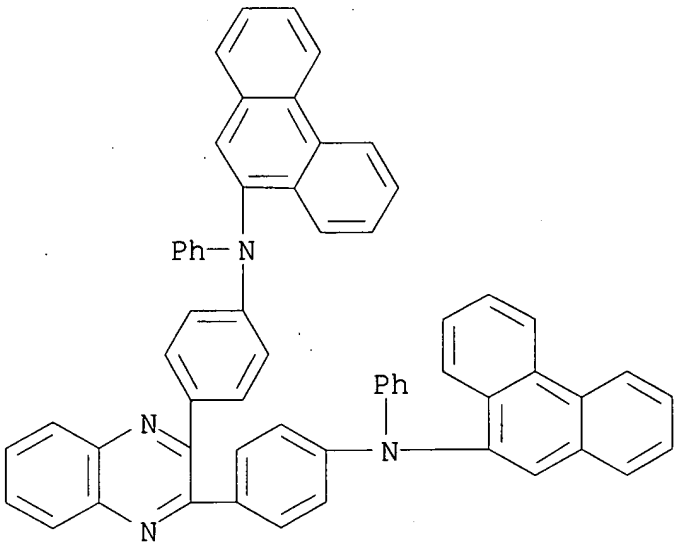
PAGE 1-A



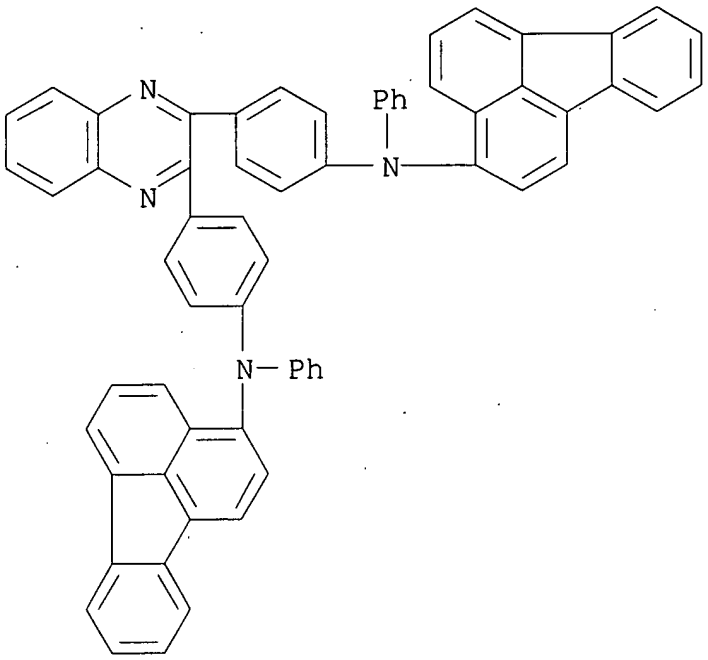
PAGE 2-A



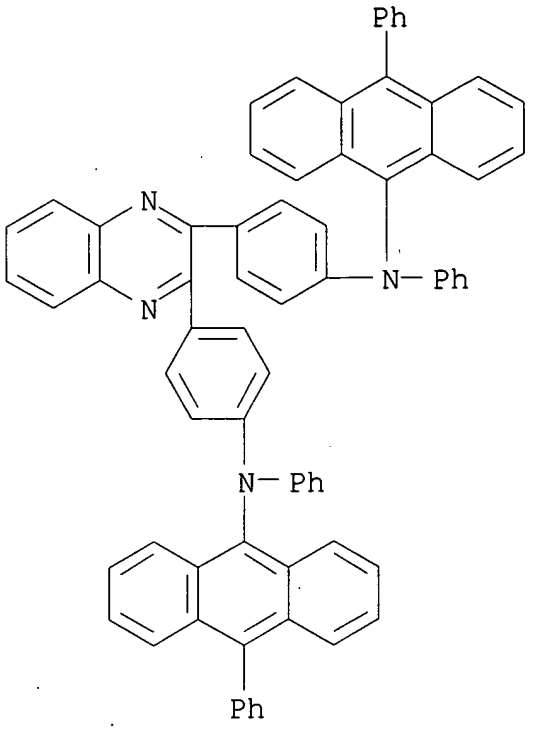
RN 873000-38-5 ZCAPLUS
CN 9-Phenanthrenamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis[N-phenyl- (9CI) (CA INDEX NAME)



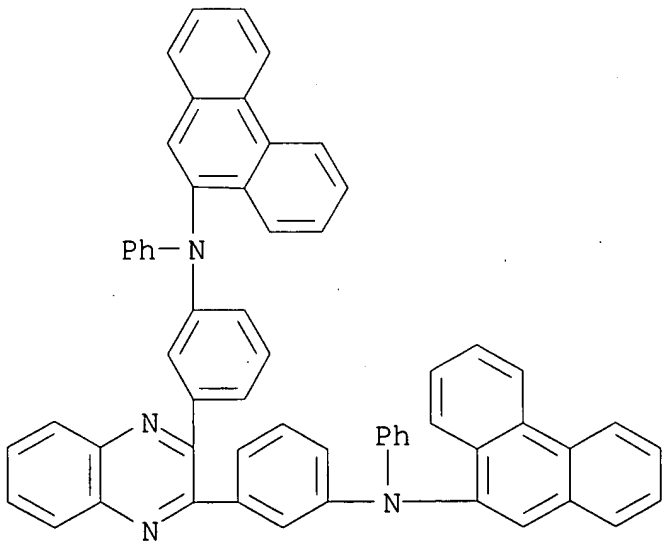
RN 873000-39-6 ZCAPLUS
CN 3-Fluoranthenamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis[N-phenyl- (9CI) (CA INDEX NAME)



RN 873000-40-9 ZCAPLUS
CN 9-Anthracenamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis[N,10-diphenyl- (9CI) (CA INDEX NAME)

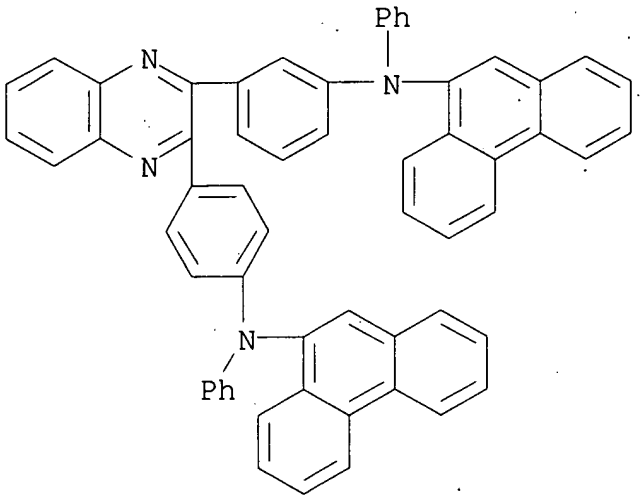


RN 873000-41-0 ZCAPLUS
CN 9-Phenanthrenamine, N,N'-(2,3-quinoxalinediyl-di-3,1-phenylene)bis[N-phenyl- (9CI) (CA INDEX NAME)



RN 873000-42-1 ZCAPLUS

CN 9-Phenanthrenamine, N-[3-[3-[4-(9-phenanthrenylphenylamino)phenyl]-2-quinoxalinyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)



IT **873000-37-4**
(substituted 2,3-diphenylquinoxalines for org. electroluminescent devices with high luminosity and long lifetime)

IT **873000-35-2P 873000-36-3P 873000-38-5P 873000-39-6P 873000-40-9P 873000-41-0P 873000-42-1P**
(substituted 2,3-diphenylquinoxalines for org. electroluminescent devices with high luminosity and long lifetime)

L17 ANSWER 9 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2005:1262621 Document No. 144:29490 Light emitting element and light emitting device. Ohsawa, Nobuharu; Abe, Hiroko; Inoue, Hideko; Shitagaki, Satoko; Seo, Satoshi (Semiconductor Energy Laboratory Co., Ltd., Japan). PCT Int. Appl. WO 2005115061 A1 20051201, 196 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2005-JP9310 20050517. PRIORITY: JP 2004-151035 20040520; JP 2004-226382 20040803; JP 2004-231742 20040806.

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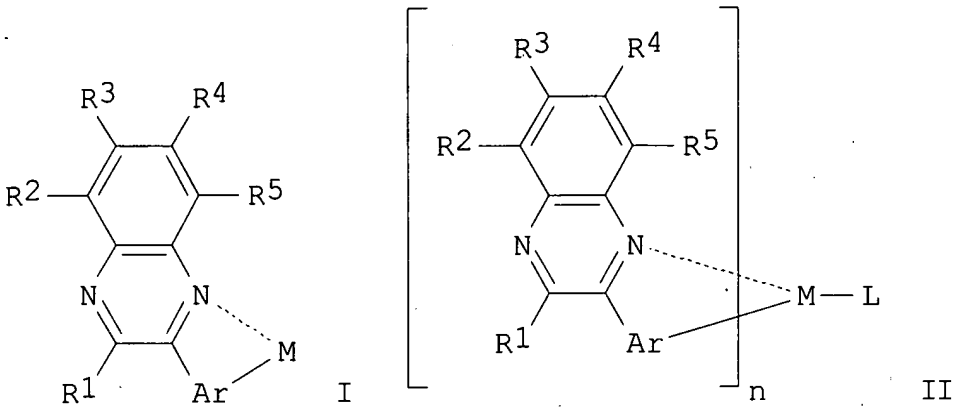
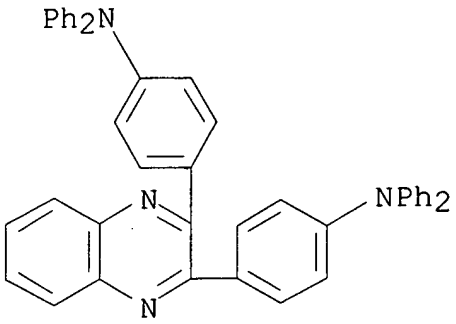


AB Light-emitting elements comprising a pair of electrodes (an anode and a cathode) wit a light-emitting layer between them are described in which the light-emitting layer includes an organometallic complex described by the general formulas I or II (R1-5 = H, halo, acyl, alkyl, alkoxyl, aryl, cyano, and/or heterocyclic groups; Ar = an aryl group having an electron-withdrawing group or a heterocyclic group having an electron-withdrawing group; M = a Group 9 or Group 10 element; n = 2 if M = Group 9 element; n = 1 if M = Group 10 element; and L = anionic ligand) and a compd. that has a larger energy gap than the organometallic complex or a compd. that has a larger ionization potential and a smaller electron affinity than the organometallic complex. Light-emitting devices using the light-emitting elements are also described.

IT **787640-67-9P**
(host; light-emitting elements employing organometallic compds.)

RN 787640-67-9 ZCAPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



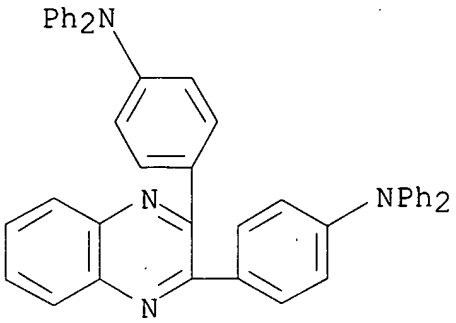
IT **787640-67-9P**
(host; light-emitting elements employing organometallic compds.)

L17 ANSWER 10 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2005:182186 Document No. 142:268917 Electroluminescent device and light-emitting device including the same. Seo, Satoshi; Abe, Hiroko; Ohsawa, Nobuharu; Ikeda, Hisao (Semiconductor Energy Laboratory Co., Ltd., Japan). U.S. Pat. Appl. Publ. US 2005048317 A1 20050303, 26 pp. (English). CODEN: USXXCO. APPLICATION: US 2004-926955 20040827. PRIORITY: JP 2003-308077 20030829.

AB Driving voltage is reduced for a doped device having a light-emitting layer formed by a host material added with a small amt. of a guest material. Specifically, driving voltage is reduced for a doped device formed by a host material added with a red emission material having an electron-withdrawing group as a guest material. Further, color purity of the doped device is improved with reducing driving voltage. Specifically, color purity of the doped device formed by a host material added with a red emission material having an electron-withdrawing group as a guest material is improved with reducing driving voltage. Org. compds. having a hole transportation property were used as a host material 521 for an electroluminescent device having a light-emitting layer 513 formed by the host material 521 and a guest material 522 having an electron-withdrawing group.

IT **787640-67-9**
(electroluminescent device and light-emitting device contg. light emitting layer formed by hole transporting host material doped with electron-withdrawing red emission material)

RN 787640-67-9 ZCAPLUS
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



IT **787640-67-9**
(electroluminescent device and light-emitting device contg. light emitting layer formed by hole transporting host material doped with electron-withdrawing red emission material)

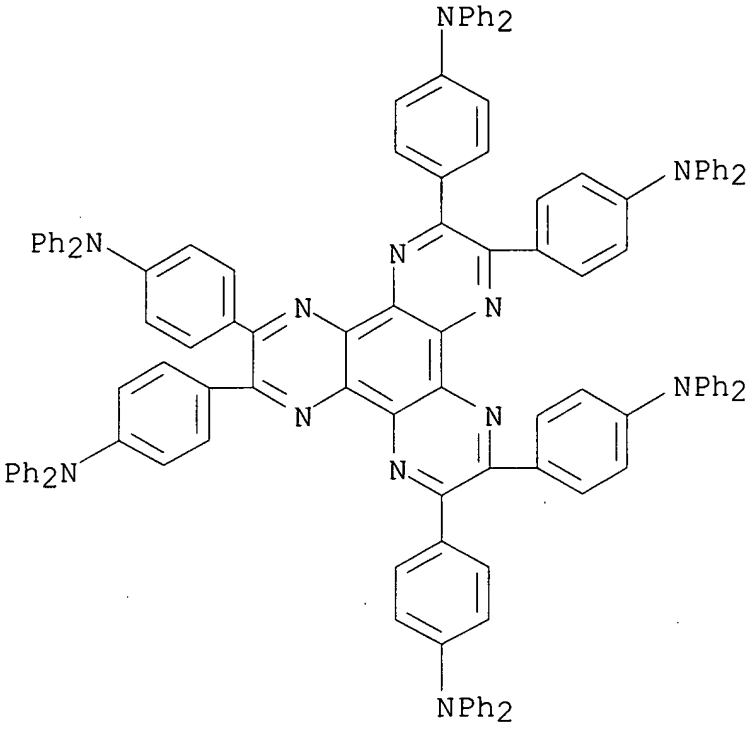
L17 ANSWER 11 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2005:180522 Document No. 143:268278 Fluorescent solvatochromism of bi-polar N,N-diphenylaminoaryl-substituted hexaazatriphenylenes, tetraazaphenanthrene, and quinoxalines. Hirayama, Tomoyuki; Yamasaki, Sumio; Ameku, Hiroki; Ishi-i, Tsutomu; Thiemann, Thies; Mataka, Shuntaro (Department of Industrial Chemistry, Faculty of Engineering, Kyushu Sangyo University, Higashi-ku, Fukuoka, 813-8503, Japan). Dyes and Pigments, 67(2), 105-110 (English) 2005. CODEN: DYPIDX. ISSN: 0143-7208. Publisher: Elsevier Ltd..

AB 1,4,5,8,9,12-Hexaazatriphenylenes, 1,4,5,8-tetraazaphenanthrene, and quinoxalines, each with six, four, and two N,N-diphenylaminobiphenyl and N,N-diphenylaminophenyl groups, resp., were prepd. and their absorption and fluorescent spectral behaviors were investigated. These compds. showed strong fluorescent solvatochromism arising from the donor-acceptor nature of the π-electron-deficient arom. core and π-electron-rich diphenylamino terminal groups.

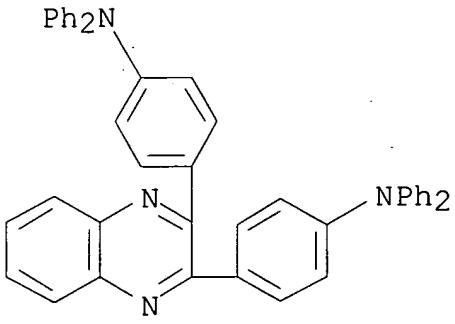
IT **847755-78-6P**
(dye; fluorescent solvatochromism of bipolar diphenylaminoaryl-substituted hexaazatriphenylenes)

RN 847755-78-6 ZCAPLUS

CN Benzenamine, 4,4',4'',4''',4'''',4'''''-dipyrazino[2,3-f:2',3'-h]quinoxaline-2,3,6,7,10,11-hexaylhexakis[N,N-diphenyl- (9CI) (CA INDEX NAME)



IT **787640-67-9P**
(yellow dye; prepn. and fluorescent solvatochromism of bipolar diphenylaminoaryl-substituted quinoxalines)
RN 787640-67-9 ZCAPLUS
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



IT **847755-78-6P**
(dye; fluorescent solvatochromism of bipolar diphenylaminoaryl-substituted hexaazatriphenylenes)
IT **787640-67-9P**

(yellow dye; prepn. and fluorescent solvatochromism of bipolar diphenylaminoaryl-substituted quinoxalines)

L17 ANSWER 12 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2005:99486 Document No. 142:186257 Quinoxaline derivative and luminescent device employing the compounds. Shitagaki, Satoko; Abe, Hiroko; Seo, Satoshi (Semiconductor Energy Laboratory Co., Ltd., Japan). PCT Int. Appl. WO 2005009979 A1 20050203, 60 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2004-JP9845 20040709. PRIORITY: JP 2003-280764 20030728.

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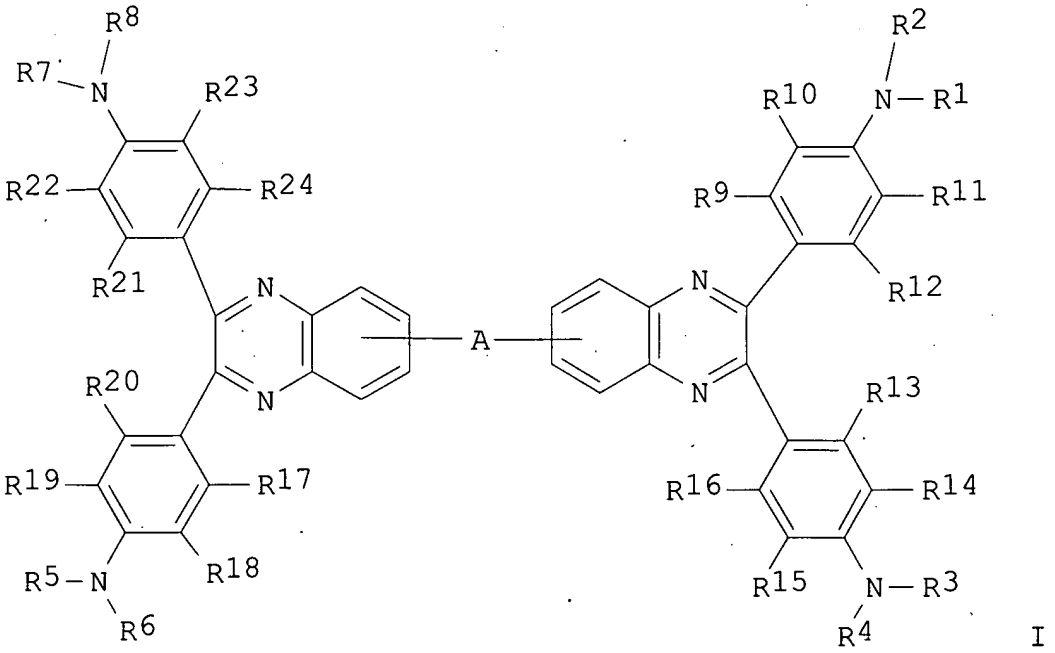


I

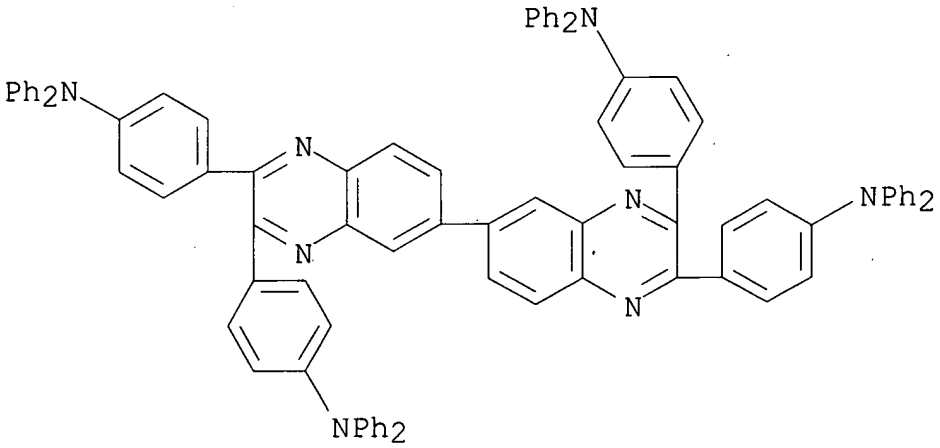
AB The invention relates to quinoxaline derivs. and luminescent device employing them, where the quinoxaline deriv. represented by the general formula I, and A represents any one of alkylene chains,

silicon, oxygen, nitrogen, and sulfur; R1 to R8 may be the same or different and each represents any of lower alkyl, aryl, and heterocyclic residues; and R9 to R24 may be the same or different and each represents any of hydrogen, halogeno, lower alkyl, alkoxy, acyl, nitro, cyano, amino, dialkylamino, diarylamino, vinyl, optionally substituted aryl, and heterocyclic residues.

IT **835628-35-8P**
(quinoxaline derivs. and luminescent device employing them)

RN 835628-35-8 ZCAPLUS

CN Benzenamine, 4,4',4'',4'''-[6,6'-biquinoxaline]-2,2',3,3'-tetrayltetrakis[N,N-diphenyl- (9CI) (CA INDEX NAME)



IT **835628-35-8P**
(quinoxaline derivs. and luminescent device employing them)

L17 ANSWER 13 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

2005:23045 Document No. 142:306794 Combination of an Aromatic Core and Aromatic Side Chains Which Constitutes Discotic Liquid Crystal and Organogel Supramolecular Assemblies. Ishii, Tsutomu; Hirayama, Tomoyuki; Murakami, Koichi; Tashiro, Hiroshi; Thiemann, Thies; Kubo, Kanji; Mori, Akira; Yamasaki, Sumio; Akao, Tetsuyuki; Tsuboyama, Akira; Mukaide, Taihei; Ueno, Kazunori; Mataka, Shuntaro (Institute for Materials Chemistry and Engineering (IMCE), Kyushu University, Kasuga, 816-8580, Japan). Langmuir, 21(4), 1261-1268 (English) 2005. CODEN: LANGD5. ISSN: 0743-7463. Publisher: American Chemical Society.

AB This paper reports unique and unusual formations of columnar liq. crystals and organogels by self-assembling discotic mols., which are composed of an arom. hexaazatriphenylene (HAT) core and six flexible arom. side chains. In HAT derivs. 3a, with 4'-(N,N-diphenylamino)biphenyl-4-yl chains, 3b, with 4'-[N-(2-naphthyl)-N-phenylamino]biphenyl-4-yl chains, and 3c, with 4'-phenoxybiphenyl-4-

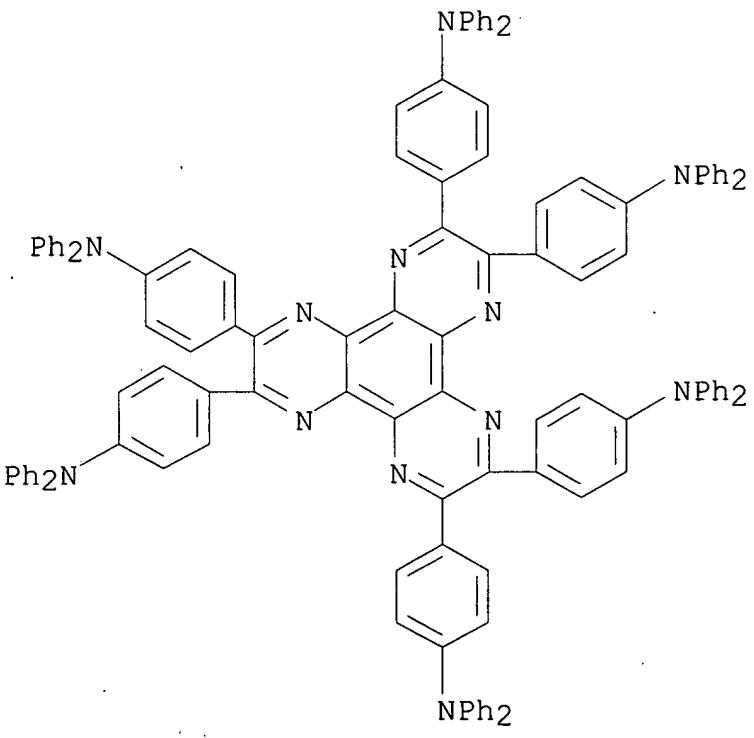
yl chains, the two-dimensional hexagonal packings can be created by their self-assembling in the liq. cryst. phase, which were characterized by polarizing optical microscopy, DSC, and x-ray diffraction anal. In certain solvents, HAT mols. 3a-c can form the viscoelastic fluid organogels, in which 1-dimensional aggregates composed of the HAT mols. are self-assembled and entangled into three-dimensional network structures. The organogel structures were analyzed by SEM observation, 1H NMR, UV-visible, and CD spectroscopy. In contrast to 3a-c, none of the liq. cryst. and organogel phases could be formed from 3d and 3e with short arom. side chains including a phenylene spacer, and 3f (except a few specific solns.) and 3g without terminal diarylamino and phenoxy groups. In 3a-c, the arom. side chains with terminal flexible groups make up soft regions that cooperatively stabilize the liq. cryst. and organogel supramol. structures together with the hard regions of the hexaazatriphenylene core.

IT **847755-78-6P**

(prepn. and phase transition temps. and enthalpies of)

RN 847755-78-6 ZCAPLUS

CN Benzenamine, 4,4',4'',4''',4'''',4'''''-dipyrazino[2,3-f:2',3'-h]quinoxaline-2,3,6,7,10,11-hexaylhexakis[N,N-diphenyl- (9CI) (CA INDEX NAME)



IT **847755-78-6P**

(prepn. and phase transition temps. and enthalpies of)

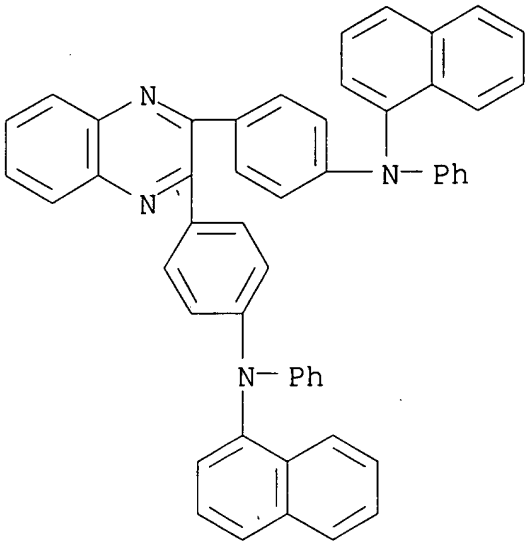
L17 ANSWER 14 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2004:927180 Document No. 141:403233 Electroluminescent devices employing quinoxaline derivs. Shitagaki, Tomoko; Tokuda, Atsushi; Abe, Hiroko; Nomura, Ryoji; Seo, Satoshi (Semiconductor Energy Laboratory Co. Ltd., Japan). PCT Int. Appl. WO 2004094389 A1 20041104, 89 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2004-JP5022 20040407. PRIORITY: JP 2003-115102 20030418; JP 2003-302998 20030827.

AB The invention relates to electroluminescent devices which comprising org. compd. materials having bipolarity, i.e., quinoxaline derivs. represented by the general formula (1): where R1 to R12 are each independently hydrogen, halogeno, lower alkyl, alkoxy, acyl, nitro, cyano, amino, dialkylamino, diarylamino, vinyl, aryl, or a heterocyclic residue; R9 and R10, R10 and R11, or R11 and R12 are each independently an arom. ring or are bonded to each other to form an arom. ring; Ar1 to Ar4 are each independently aryl or a heterocyclic residue; and Ar1, Ar2, Ar3, and Ar4 are each independent, or Ar1 and Ar2, or Ar3 and Ar4 are bonded to each other either directly or through oxygen (O), sulfur (S) or carbonyl.

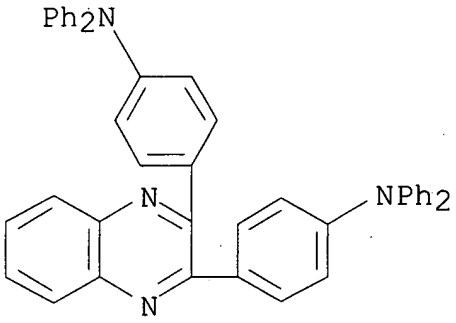
IT **436800-49-6P 787640-67-9P 787640-68-0P**
787640-69-1P 787640-70-4P
(electroluminescent devices employing quinoxaline derivs)

RN 436800-49-6 ZCAPLUS

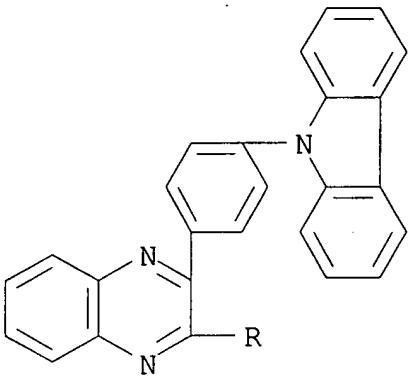
CN 1-Naphthalenamine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[N-phenyl- (9CI) (CA INDEX NAME)

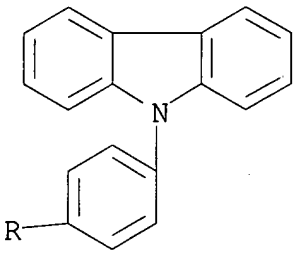


RN 787640-67-9 ZCAPLUS
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



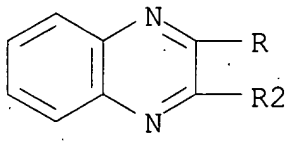
RN 787640-68-0 ZCAPLUS
CN 9H-Carbazole, 9,9'-(2,3-quinoxalinediyldi-4,1-phenylene)bis- (9CI) (CA INDEX NAME)

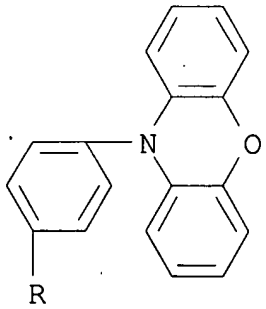




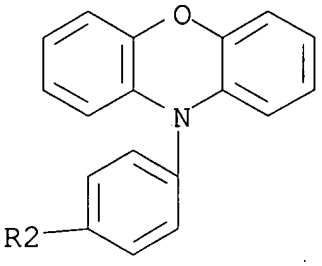
RN 787640-69-1 ZCAPLUS
CN 10H-Phenoxazine, 10,10'-(2,3-quinoxalinediyldi-4,1-phenylene)bis-
(9CI) (CA INDEX NAME)

PAGE 1-A



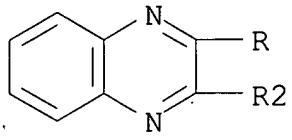


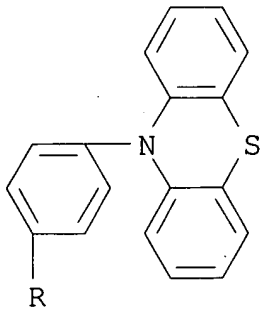
PAGE 2-A



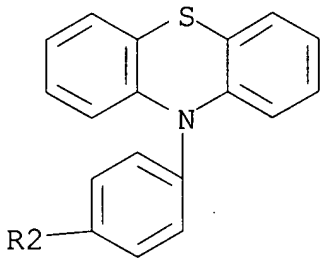
RN 787640-70-4 ZCAPLUS
CN 10H-Phenothiazine, 10,10'-(2,3-quinoxalinediyldi-4,1-phenylene)bis-(9CI) (CA INDEX NAME)

PAGE 1-A





PAGE 2-A



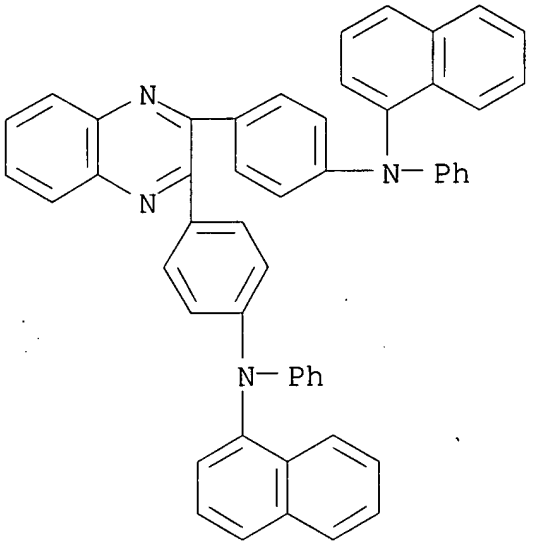
IT **436800-49-6P 787640-67-9P 787640-68-0P**
787640-69-1P 787640-70-4P
(electroluminescent devices employing quinoxaline derivs)

L17 ANSWER 15 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2002:329583 Document No. 137:39058 Quinoxalines Incorporating Triarylamines: Potential Electroluminescent Materials with Tunable Emission Characteristics. Thomas, K. R. Justin; Lin, Jiann T.; Tao, Yu-Tai; Chuen, Chang-Hao (Institute of Chemistry, Academia Sinica, Taipei, Taiwan). Chemistry of Materials, 14(6), 2796-2802 (English) 2002. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

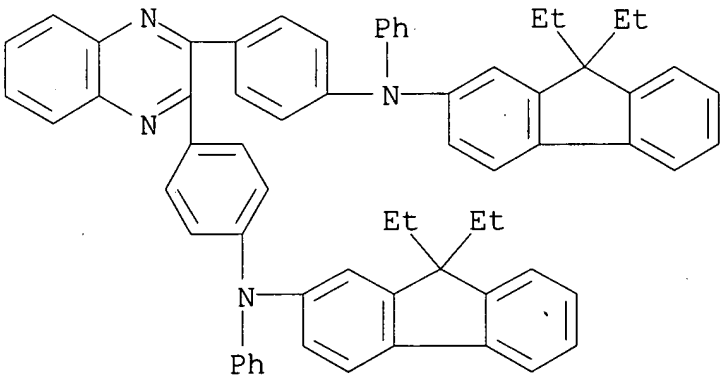
AB Dipolar compds. featuring quinoxaline acceptors and various triarylamine donors were prepd. in good yields and successfully employed in the fabrication of org. light-emitting diodes (OLEDs). Also the emission color of these compds. can be easily tuned from bluish green to orange by suitably modifying the diarylamine and quinoxaline units independently. Increasing the donor and acceptor strengths bathochromically shifts the absorption and emission bands. These mols. possess moderate glass transition temps. (114-152°) and exhibit high decompn. temps. (441-554°). The two-layer OLEDs fabricated using these materials as hole-transporting and emitting layers and 1,3,5-tris(N-phenylbenzimidazol-2-yl)benzene or tris(8-hydroxyquinolinato)aluminum as the electron-transport layer display promising characteristics, i.e., emission color, luminance, and efficiency. Incorporation of the hole-blocking quinoxaline segments in the hole-transporting triarylamine mols. leads to the confinement of the recombination zone in it, and thus emission is realized mainly from these materials for both types of devices. The factors leading to the funneling of light through the hole-transporting layer in these layers are critically analyzed.

IT **436800-49-6 436800-51-0 436800-53-2**
(quinoxalines incorporating triarylamines as potential electroluminescent materials with tunable emission characteristics)

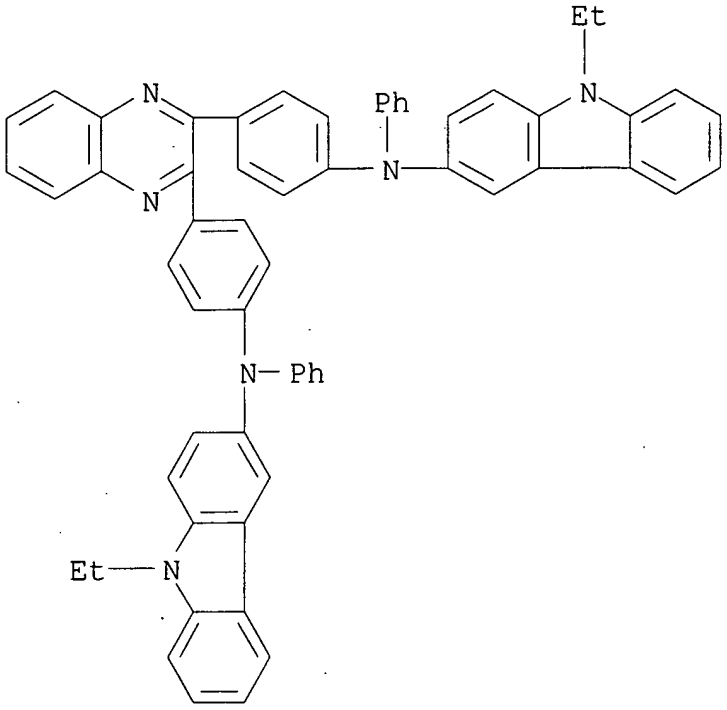
RN 436800-49-6 ZCAPLUS
CN 1-Naphthalenamine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[N-phenyl- (9CI) (CA INDEX NAME)



RN 436800-51-0 ZCAPLUS
CN 9H-Fluoren-2-amine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[9,9-diethyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 436800-53-2 ZCAPLUS
CN 9H-Carbazol-3-amine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[9-ethyl-N-phenyl- (9CI) (CA INDEX NAME)



IT **436800-49-6 436800-51-0 436800-53-2**
(quinoxalines incorporating triarylamines as potential electroluminescent materials with tunable emission characteristics)

L17 ANSWER 16 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
2000:175881 Document No. 132:214645 Organic electroluminescence device and phenylenediamine derivative. Kawamura, Hisayuki; Hosokawa, Chishio (Idemitsu Kosan Co., Ltd., Japan). PCT Int. Appl. WO 2000014174 A1 20000316, 124 pp. DESIGNATED STATES: W: CN, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1999-JP4794 19990903. PRIORITY: JP 1998-255563 19980909; JP 1999-47110 19990224.

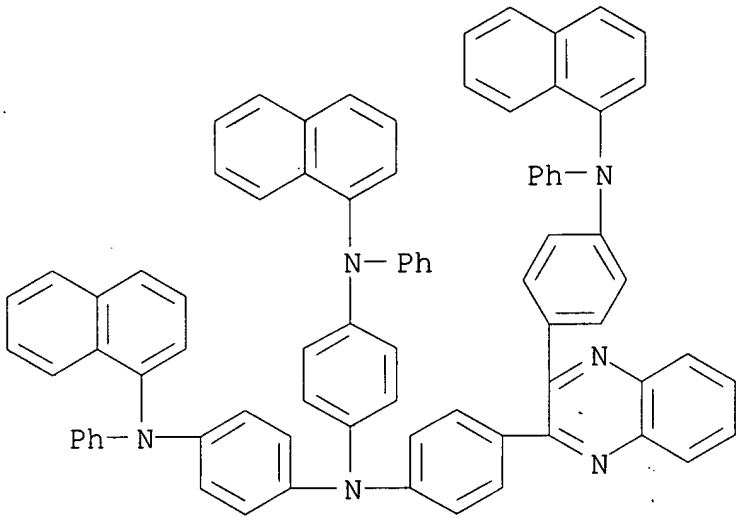
AB An org. electroluminescence device having a low driving voltage and a long life and a material having a small ionization potential and providing a large hole mobility are disclosed. The org. electroluminescence device comprises an org. electroluminescent layer contg. a charge injection assisting material, and a hole transport region contg. a phenylenediamine deriv. expressed by a specific structural formula and having a hole mobility of 10-4 cm2/V·s or more, the both layer being sandwiched between a pair of electrodes.

IT **260550-94-5**

(org. electroluminescence device contg. phenylenediamine deriv.)

RN 260550-94-5 ZCAPLUS

CN 1,4-Benzenediamine, N-1-naphthalenyl-N'-[1-(1-naphthalenylphenylamino)phenyl]-N'-[4-[3-[4-(1-naphthalenylphenylamino)phenyl]-2-quinoxalinyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)



IT **260550-94-5**

(org. electroluminescence device contg. phenylenediamine deriv.)

L17 ANSWER 17 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN

1995:28212 Document No. 122:107226 Studies on bismaleimides and related materials: Part III. Synthesis and characterization of bismaleimides derived from benzophenone, 1,2-diphenylethane, 1,4-diphenylbutane and condensed pyrazines. Preston, P. N.; Shah, V. K.; Simpson, S. W.; Soutar, I.; Stewart, N. J. (Dep. Chem., Heriot-Watt Univ., Riccarton, EH14 4AS, UK). High Performance Polymers, 6(1), 35-41 (English) 1994. CODEN: HPPOEX. ISSN: 0954-0083.

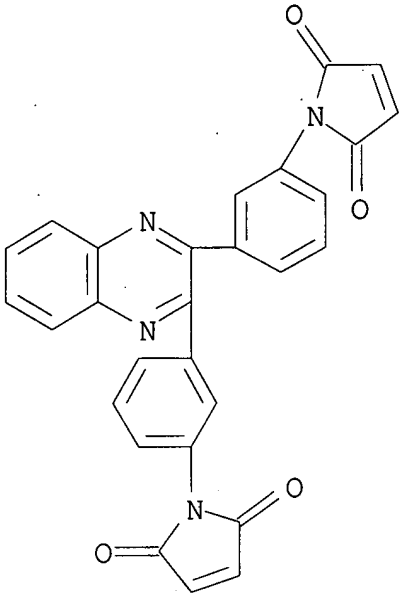
AB New bismaleimides have been synthesized from diamines derived from benzophenone, 1,2-diphenylethane, 1,4-diphenylbutane, 2,3-diphenylquinoxaline and 2,3-diphenylnaphtho[2,3-b]pyrazine. Cure profiles were established by both DSC and DMTA. Cured resins prepd. from the bismaleimide monomers were studied by TGA, and they exhibited good thermal and thermo-oxidative stability.

IT **160908-11-2P 160908-12-3P**

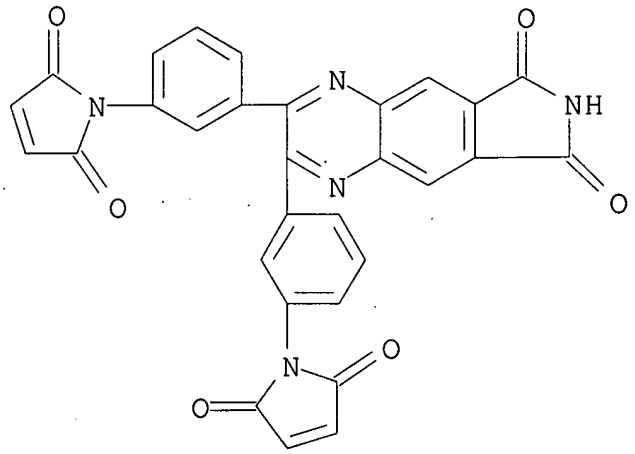
(synthesis and polymn. of bismaleimides)

RN 160908-11-2 ZCAPLUS

CN 1H-Pyrrole-2,5-dione, 1,1'-(2,3-quinoxalinediyldi-3,1-phenylene)bis- (9CI) (CA INDEX NAME)



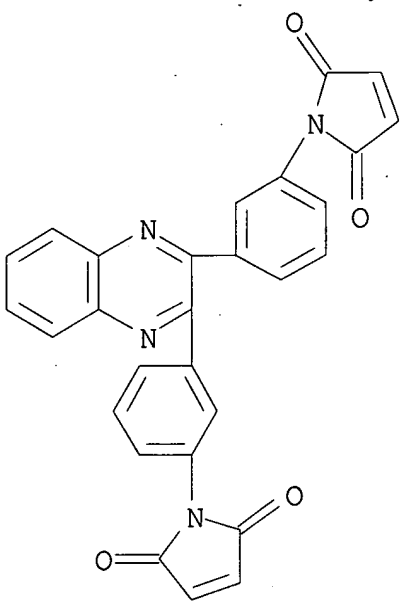
RN 160908-12-3 ZCAPLUS
CN 6H-Pyrrolo[3,4-g]quinoxaline-6,8(7H)-dione, 2,3-bis[3-(2,5-dihydro-2,5-dioxo-1H-pyrrol-1-yl)phenyl]- (9CI) (CA INDEX NAME)



IT **160908-16-7P**
(synthesis of bismaleimide polymer and thermal stability)
RN 160908-16-7 ZCAPLUS
CN 1H-Pyrrole-2,5-dione, 1,1'-(2,3-quinoxalinediyldi-3,1-phenylene)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 160908-11-2
CMF C28 H16 N4 O4



IT **160908-11-2P 160908-12-3P**
(synthesis and polymn. of bismaleimides)
IT **160908-16-7P**
(synthesis of bismaleimide polymer and thermal stability)

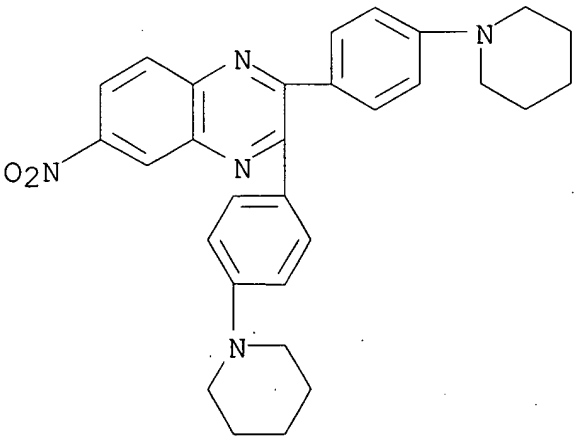
L17 ANSWER 18 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
1994:520983 Document No. 121:120983 Progress on nonlinear optical chromophores and polymers for practical electro-optic waveguide application. Twieg, R. J.; Betterton, K. M.; Burland, D. M.; Lee, V. Y.; Miller, R. D.; Moylan, C. R.; Volksen, W.; Walsh, C. A. (Almaden Res. Cent., IBM Res. Div., San Jose, CA, 95120-6099, USA). Proceedings of SPIE-The International Society for Optical Engineering, 2025(Nonlinear Optical Properties of Organic Materials VI), 94-105 (English) 1993. CODEN: PSISDG. ISSN: 0277-786X.
AB The realization of practical electro-optical devices based on the poled polymer waveguide approach is contingent on the simultaneous soln. of a no. of outstanding materials and fabrication issues. The authors have prepd. and studied the mol. properties of a no. of heterocycle contg. chromophores with structures derived from high temp. polymer materials and further evaluated many of them as guests in polyimide polymer hosts. Correlations between the structure of these chromophores and their phys. properties including optical

nonlinearity, absorption, dipole moment and thermal stability have been made. Furthermore, a correlation between thermal stability and oxidn. potential for some of these heterocyclic chromophores has been found and extension of this correlation to other types of nonlinear chromophores is suggested.

IT **156989-93-4 156990-01-1**
(nonlinear optical materials using, for electrooptic waveguide applications)

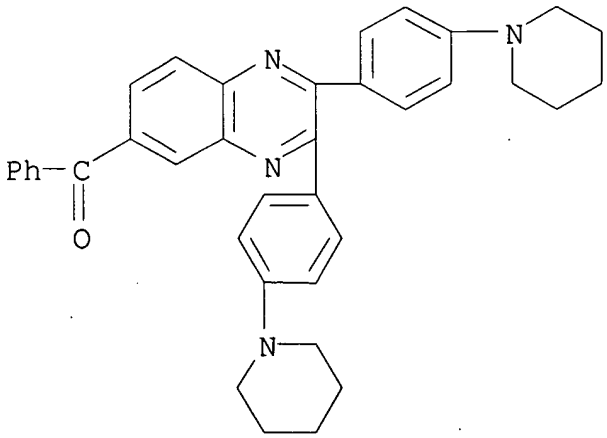
RN 156989-93-4 ZCAPLUS

CN Quinoxaline, 6-nitro-2,3-bis[4-(1-piperidinyl)phenyl]- (9CI) (CA INDEX NAME)



RN 156990-01-1 ZCAPLUS

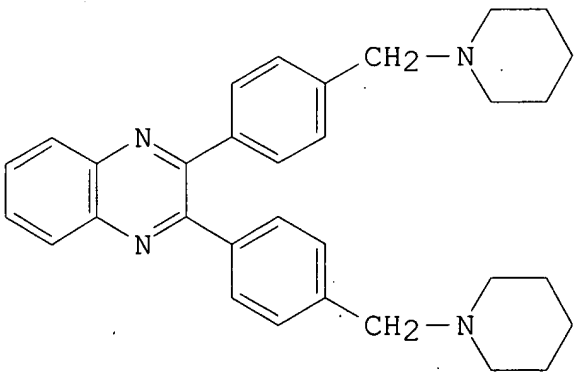
CN Methanone, [2,3-bis[4-(1-piperidinyl)phenyl]-6-quinoxalinyl]phenyl- (9CI) (CA INDEX NAME)



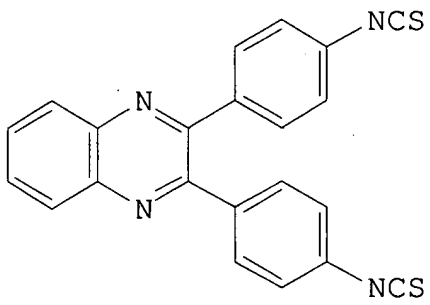
IT **156989-93-4 156990-01-1**
(nonlinear optical materials using, for electrooptic waveguide applications)

L17 ANSWER 19 OF 19 ZCAPLUS COPYRIGHT 2007 ACS on STN
1991:559095 Document No. 115:159095 Synthesis and antiamoebic activity of 2,3-diaryl-5,8-dimethoxyquinoxalines. Venugopalan, B.; Sureshi, S.; Karnik, P. J.; De Souza, N. J.; Chatterjee, D. K.; Iyer, S. N. (Dep. Chem., Hoechst Indian Ltd., Bombay, 400 080, India). Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry, 30B(8), 777-83 (English) 1991. CODEN: IJSBDB. ISSN: 0376-4699.

GI



III



IV

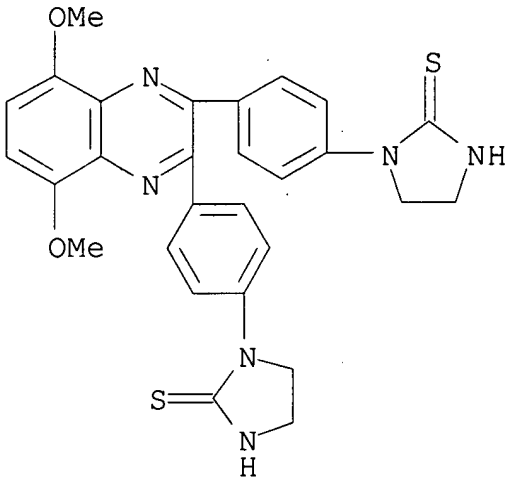
AB Various derivs. of 2,3-bis(4-bromomethylphenyl)dimethoxyquinoxaline (I) and 2,3-bis(4-aminophenyl)dimethoxyquinoxaline (II) have been synthesized. Thus, I reacted with piperidine to give bis(piperidinomethylphenyl)quinoxaline III. II reacted with thiophospgene to give bis(isothiocyanatophenyl)quinoxaline IV. A few compds. display moderate antiamebic activity against Entamoeba histolytica in hepatic amebiasis in mice and in intestinal amebiasis

in the weanling Wistar rat model.

IT **136270-55-8P**
(prepn. and antiamebic activity of)

RN 136270-55-8 ZCAPLUS

CN 2-Imidazolidinethione, 1,1'-[(5,8-dimethoxy-2,3-quinoxalinediyl)di-4,1-phenylene]bis- (9CI) (CA INDEX NAME)



IT **136270-55-8P**
(prepn. and antiamebic activity of)

=> D L18 1-4 CBIB ABS HITSTR HITIND

L18 ANSWER 1 OF 4 ZCAPLUS COPYRIGHT 2007 ACS on STN

1997:386432 Document No. 127:109269 Synthesis and characterization of novel aromatic polyamides and polyimides derived from 2,3-di(3-aminophenyl)quinoxaline. Akutsu, Fumihiko; Inoki, Mari; Araki, Kiminori; Kasashima, Yoshio; Naruchi, Kiyoshi; Miura, Masatoshi (Dep. Appl. Chem., Fac. Eng., Chiba Univ., Chiba, 263, Japan). Polymer Journal (Tokyo), 29(6), 529-533 (English) 1997. CODEN: POLJB8. ISSN: 0032-3896. Publisher: Society of Polymer Science, Japan.

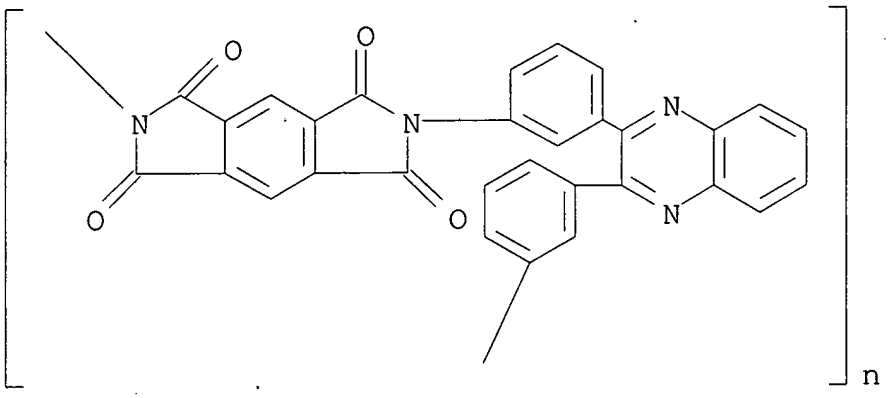
AB A novel arom. diamine 2,3-di(3-aminophenyl)quinoxaline (DAPQ) was prepd. from benzil by a three-step synthesis. New arom. polyamides were synthesized by the direct polycondensation of DAPQ and several arom. dicarboxylic acids. The polyamides were obtained almost quant. The inherent viscosities ranged from 0.49 to 0.56 dL g-1. The glass transition temp. (Tg) of the polyamides ranged from 258 to 291°, and the temp. at 10% wt. loss (Td10) ranged between 515° and 546°. Novel arom. polyimides were synthesized by the ring-opening polyaddn. of several arom.

tetracarboxylic dianhydrides to DAPQ, followed by thermal cyclodehydration. The inherent viscosities of the polyamic acids ranged from 0.28 to 1.13 dL g-1. The Tg of the polyimides ranged between 263° and 298°, and their Td10 was above 550°. The polyamides and polyimides were sol. in several org. solvents such as m-cresol.

IT **192371-39-4P 192371-41-8P 192371-43-0P**
(synthesis and characterization of of novel arom. polyamides and polyimides derived from 2,3-bis(3-aminophenyl)quinoxaline)

RN 192371-39-4 ZCAPLUS

CN Poly[(5,7-dihydro-1,3,5,7-tetraoxobenzo[1,2-c:4,5-c']dipyrrole-2,6(1H,3H)-diyl)-1,3-phenylene-2,3-quinoxalinediyl-1,3-phenylene] (9CI) (CA INDEX NAME)



RN 192371-41-8 ZCAPLUS

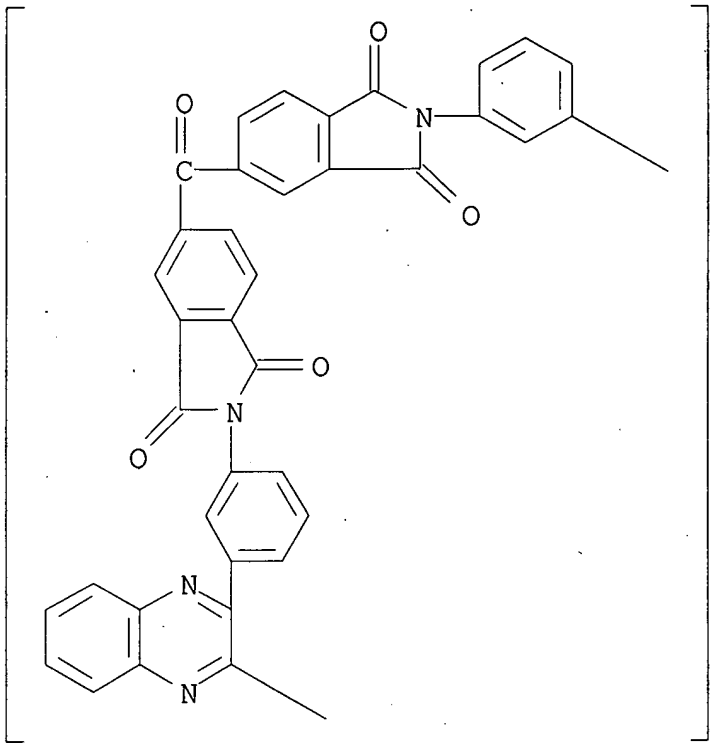
CN Poly[2,3-quinoxalinediyl-1,3-phenylene(1,1',3,3'-tetrahydro-1,1',3,3'-tetraoxo[5,5'-bi-2H-isoindole]-2,2'-diyl)-1,3-phenylene] (9CI) (CA INDEX NAME)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

RN 192371-43-0 ZCAPLUS

CN Poly[2,3-quinoxalinediyl-1,3-phenylene(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,3-phenylene] (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)
IT 192371-38-3P **192371-39-4P** 192371-40-7P
192371-41-8P 192371-42-9P, 3,3',4,4'-Benzophenonetetracarboxylic dianhydride-2,3-bis(3-aminophenyl)quinoxaline copolymer **192371-43-0P**
192464-43-0P 192464-45-2P 192464-46-3P
(synthesis and characterization of of novel arom. polyamides and polyimides derived from 2,3-bis(3-aminophenyl)quinoxaline)

L18 ANSWER 2 OF 4 ZCAPLUS COPYRIGHT 2007 ACS on STN
1995:1871 Document No. 122:292077 Structure-property relationships in PMR-15-type polyimide resins: III. New polyimides incorporating triazoles, quinoxalines, pyridopyrazines and pyrazinopyridazines. Jigajinni, V B.; Preston, P N.; Shah, V K.; Simpson, S W.; Soutar, I.; Stewart, N J. (Dep. Chem., Heriot-Watt Univ., Riccarton Edinburgh, EH14 4AS, UK). High Performance Polymers, 5(3), 239-57 (English) 1993. CODEN: HPPOEX. ISSN: 0954-0083.
AB Polyimide oligomers (prepolymers) and resins of the PMR-15 type were prepd. from 5-norbornene-2,3-dicarboxylic half acid ester, 3,3',4,4'-benzophenonetetracarboxylic diester and a series of diamines incorporating 1,2,3-triazole, quinoxaline, pyrido[2,3-b]pyrazine, pyrido[3,4-b]pyrazine, benzo[g]quinoxaline, pyrazino[2,3-d]pyridazine, and bis(pyrido[3,4-b]pyrazino)benzene ring systems. Two tetraamines in the bis(pyrazino[2,3-

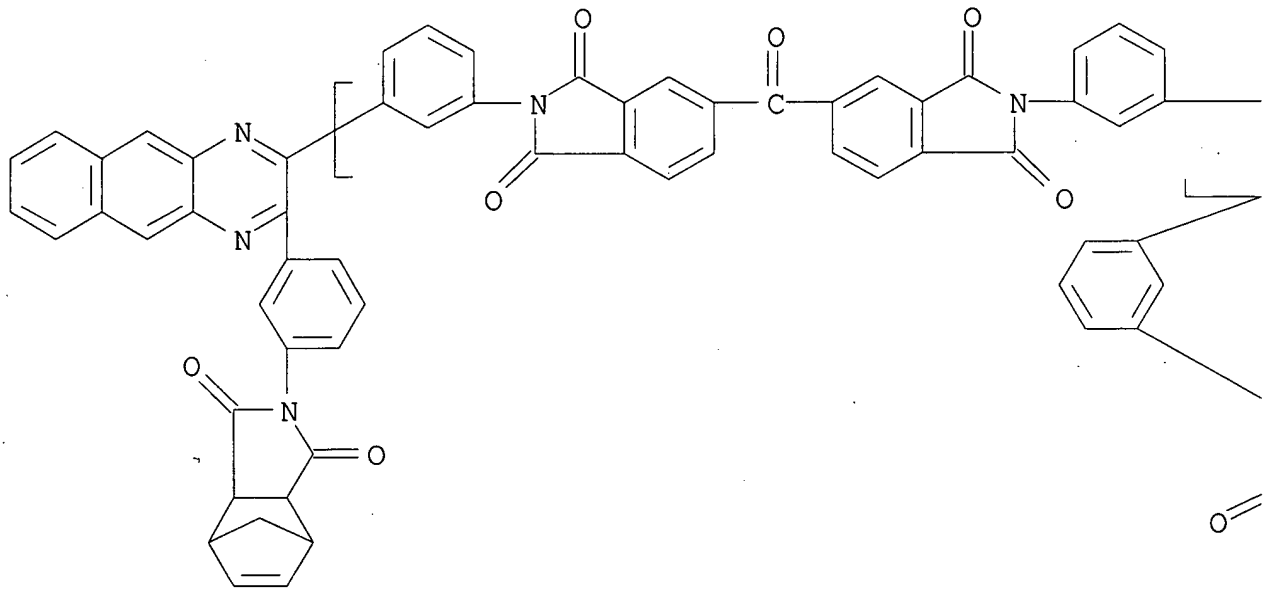
d]pyridazino)benzene ring system were also employed. Selected diamine monomers from the above ring systems provide PMR-15-analog resins of higher thermal and thermooxidative stability than PMR-15 itself. The phys. behavior during oligomerization and curing of PMR systems was studied by dynamic mech. thermal anal. Traces akin to that from PMR-15 are obtained using certain diamine monomers (e.g. triazole and pyrido[3,4-b]pyrazine contg.) but a featureless thermogram is obsd. using tetraamines in the bis(pyrazino[2,3-d]pyridazino) benzene system.

IT **160903-96-8P 160903-98-0P**
(norbornenedicarboximide-terminated sru; prepn. and properties of polyimides incorporating triazoles, quinoxalines, pyridopyrazines and pyrazinopyridazines)

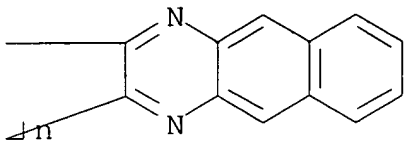
RN 160903-96-8 ZCAPLUS

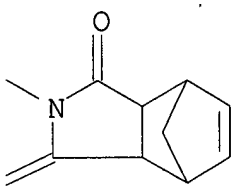
CN Poly[benzo[g]quinoxaline-2,3-diyl-1,3-phenylene(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,3-phenylene], α-[3-[(3aR,4S,7R,7aS)-1,3,3a,4,7,7a-hexahydro-1,3-dioxo-4,7-methano-2H-isoindol-2-yl]phenyl]-ω-[3-[3-[(3aR,4S,7R,7aS)-1,3,3a,4,7,7a-hexahydro-1,3-dioxo-4,7-methano-2H-isoindol-2-yl]phenyl]benzo[g]quinoxalin-2-yl]-, rel- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

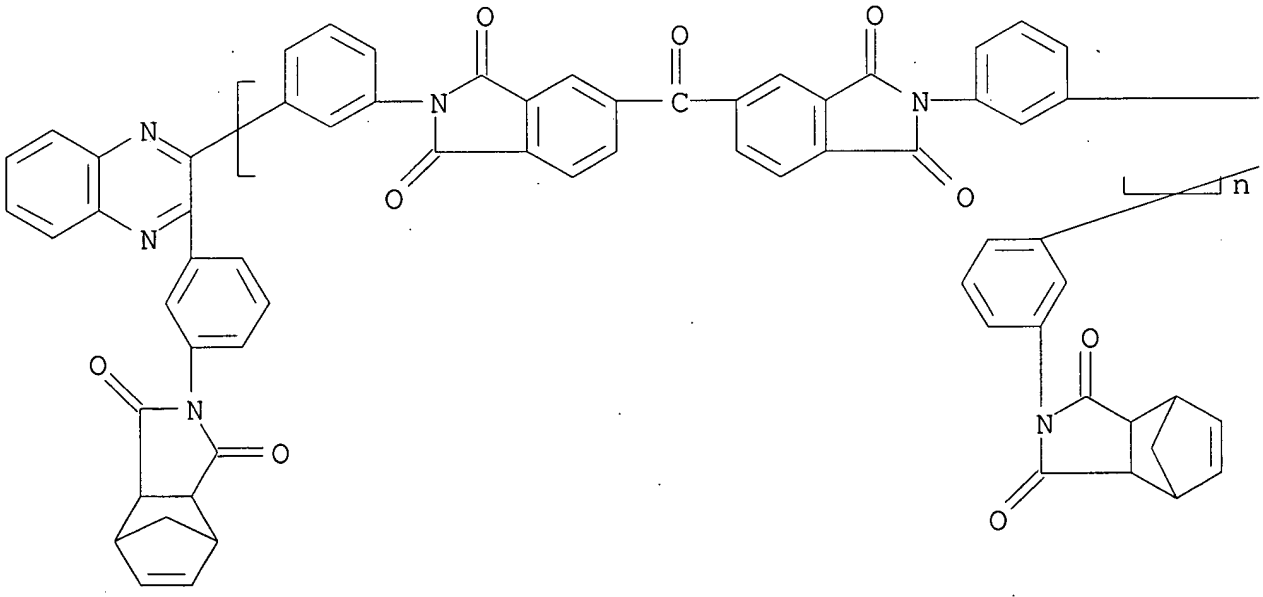




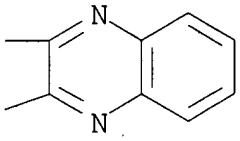
RN 160903-98-0 ZCAPLUS

CN Poly[2,3-quinoxalinediyl-1,3-phenylene(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,3-phenylene], α-[3-(1,3,3a,4,7,7a-hexahydro-1,3-dioxo-4,7-methano-2H-isoindol-2-yl)phenyl]-ω-[3-[3-(1,3,3a,4,7,7a-hexahydro-1,3-dioxo-4,7-methano-2H-isoindol-2-yl)phenyl]-2-quinoxalinyl]-, stereoisomer (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

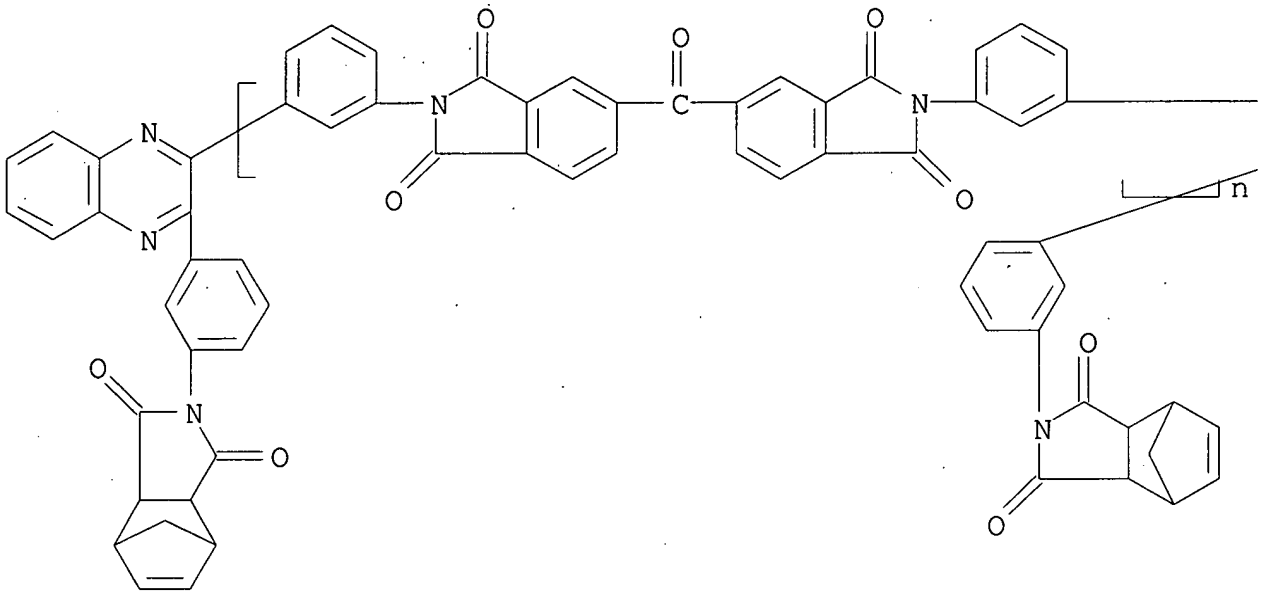


IT **161022-05-5P 161022-06-6P**
(prepn. and properties of polyimides incorporating triazoles, quinoxalines, pyridopyrazines and pyrazinopyridazines)
RN 161022-05-5 ZCAPLUS
CN Poly[2,3-quinoxalinediyl-1,3-phenylene(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,3-phenylene], α-[3-(1,3,3a,4,7,7a-hexahydro-1,3-dioxo-4,7-methano-2H-isoindol-2-yl)phenyl]-ω-[3-[3-(1,3,3a,4,7,7a-hexahydro-1,3-dioxo-4,7-methano-2H-isoindol-2-yl)phenyl]-2-quinoxalinyl]-, stereoisomer, homopolymer (9CI) (CA INDEX NAME)

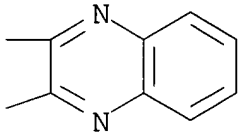
CM 1

CRN 160903-98-0
CMF (C37 H18 N4 O5)n C38 H28 N4 O4
CCI PMS

PAGE 1-A



PAGE 1-B



RN 161022-06-6 ZCAPLUS
CN Poly[benzo[g]quinoxaline-2,3-diyl-1,3-phenylene(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,3-phenylene], α-[3-(1,3,3a,4,7,7a-hexahydro-1,3-dioxo-4,7-methano-2H-isoindol-2-yl)phenyl]-ω-[3-[3-(1,3,3a,4,7,7a-hexahydro-1,3-dioxo-4,7-methano-2H-isoindol-2-yl)phenyl]benzo[g]quinoxalin-2-yl]-, stereoisomer, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 160903-96-8
CMF (C41 H20 N4 O5)n C42 H30 N4 O4
CCI PMS

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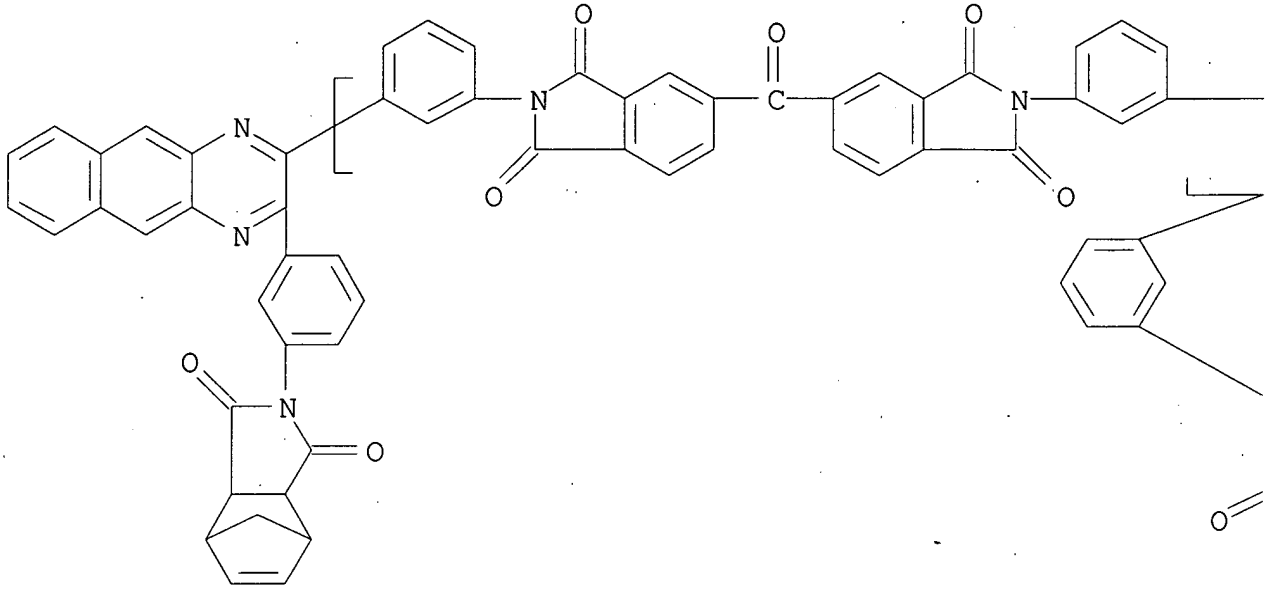

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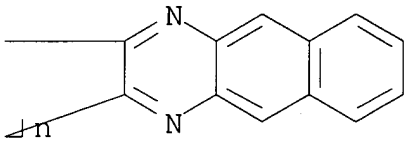
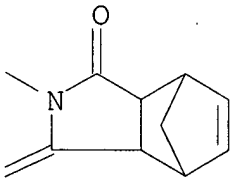




CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 35

IT 160903-95-7P **160903-96-8P** 160903-97-9P
160903-98-0P 160903-99-1P 160904-00-7P 160904-01-8P
160904-02-9P
(norbornenedicarboximide-terminated sru; prepn. and properties of

polyimides incorporating triazoles, quinoxalines, pyridopyrazines and pyrazinopyridazines)

IT 161021-93-8P 161021-94-9P 161021-95-0P 161021-96-1P
161021-97-2P 161021-98-3P 161021-99-4P 161022-00-0P
161022-01-1P 161022-02-2P 161022-03-3P 161022-04-4P
161022-05-5P 161022-06-6P 161022-07-7P
161022-08-8P 161022-09-9P 161022-10-2P 161022-11-3P
161022-12-4P 162443-69-8P 162443-70-1P
(prepn. and properties of polyimides incorporating triazoles, quinoxalines, pyridopyrazines and pyrazinopyridazines)

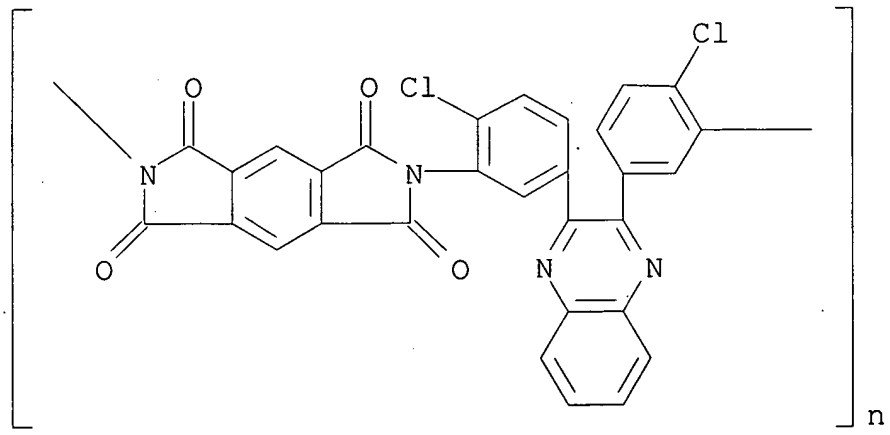
L18 ANSWER 3 OF 4 ZCAPLUS COPYRIGHT 2007 ACS on STN
1994:107922 Document No. 120:107922 New polymers based on quinoxaline-containing monomers. Rusanov, A. L.; Vakhtangishvili, L. V.; Belomoina, N. M. (Nesmeyanov Inst. Organoelem. Comp., Moscow, 117813, Russia). Vysokomolekulyarnye Soedineniya, Seriya B: Kratkie Soobshcheniya, 35(9), 1518-20 Published in: Vysokomol. Soedin., Ser. B, 35(9) (Russian) 1993. CODEN: VYSBAI. ISSN: 0507-5483.

AB New quinoxaline-contg. polyimides (PIQ) and polybenzimidazoles (PBQ) were prepd. and characterized. The PIQ were prepd. from 2,3-bis(3-amino-4-chlorophenyl)quinoxalilne and pyromellitic dianhydride or benzophenone-3,3',4,4'-dicarboxylic dianhydride. The PBQ were prepd. from 2,3-bis(3-nitro-4-aminophenyl)quinoxalilne and isophthaloyl dichloride or terephthaloyl dichloride.

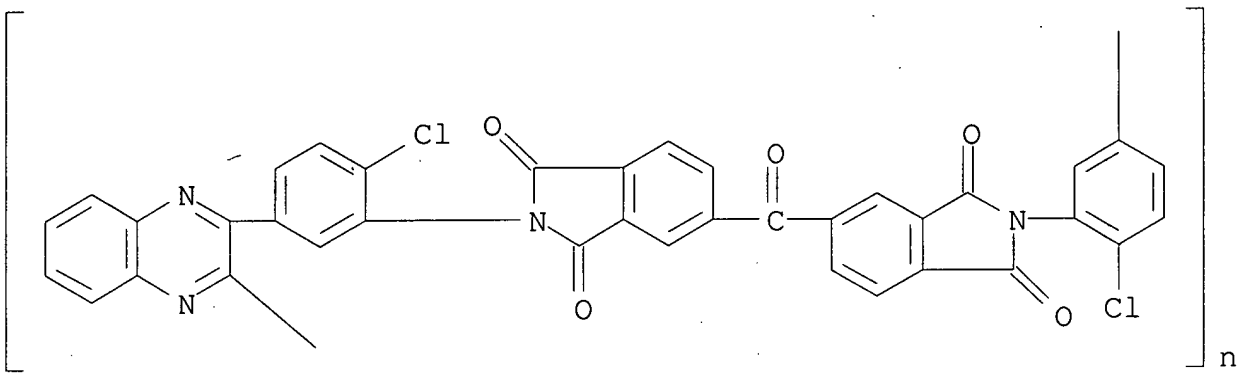
IT **153005-10-8P 153005-12-0P**
(prepn. and properties of)

RN 153005-10-8 ZCAPLUS

CN Poly[(5,7-dihydro-1,3,5,7-tetraoxobenzo[1,2-c:4,5-c']dipyrrole-2,6(1H,3H)-diyl)(6-chloro-1,3-phenylene)-2,3-quinoxalinediyl(4-chloro-1,3-phenylene)] (9CI) (CA INDEX NAME)

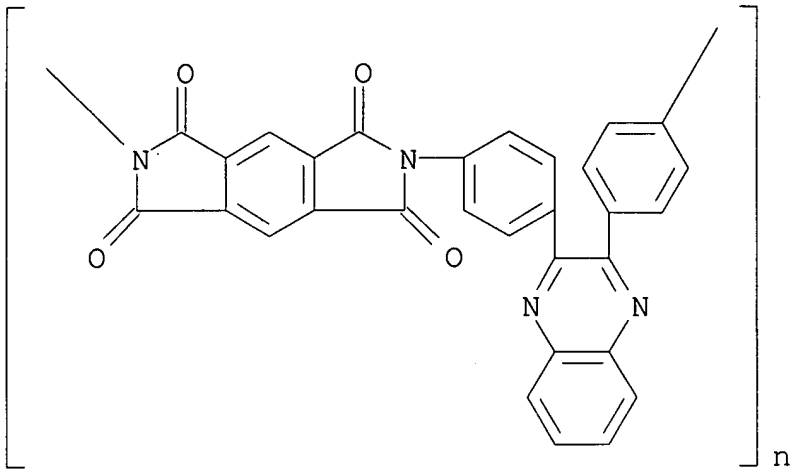


RN 153005-12-0 ZCAPLUS
CN Poly[2,3-quinoxalinediyl(4-chloro-1,3-phenylene)(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)(6-chloro-1,3-phenylene)] (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36
IT 153005-09-5P **153005-10-8P** 153005-11-9P
153005-12-0P 153005-13-1P 153005-14-2P 153005-15-3P
153005-16-4P
(prepn. and properties of)

L18 ANSWER 4 OF 4 ZCAPLUS COPYRIGHT 2007 ACS on STN
1991:24706 Document No. 114:24706 Preparation of polyimides from 2,3-bis(4-aminophenyl)quinoxalines and aromatic tetracarboxylic dianhydrides. Akutsu, Fumihiko; Kuze, Sigeki; Matsuo, Koichi; Naruchi, Kiyoshi; Miura, Masatoshi (Fac. Eng., Chiba Univ., Chiba, 260, Japan). Makromolekulare Chemie, Rapid Communications, 11(12), 673-7 (English) 1990. CODEN: MCRCD4. ISSN: 0173-2803.
AB 2,3-Bis(4-aminophenyl)quinoxaline (I) and I 6-Me deriv. were prepd. and polycondensed with pyromellitic dianhydride, benzophenonetetracarboxylic dianhydride, or 3,4:3'4'-biphenyltetracarboxylic dianhydride in AcNMe2 to give polyamic acids of inherent viscosities 0.17-0.82. The polyamic acids were cyclized at ≤270° to give the title polyimides with soly. greater than and heat stability similar to polyimides not contg. quinoxaline units. Glass temps. were 319->380°.
IT **131151-25-2P 131151-26-3P 131151-27-4P**
(prepn. and soly. and thermal stability of)
RN 131151-25-2 ZCAPLUS
CN Poly[(5,7-dihydro-1,3,5,7-tetraoxobenzo[1,2-c:4,5-c']dipyrrole-2,6(1H,3H)-diyl)-1,4-phenylene-2,3-quinoxalinediyl-1,4-phenylene] (9CI) (CA INDEX NAME)



RN 131151-26-3 ZCAPLUS
CN Poly[2,3-quinoxalinediyl-1,4-phenylene(1,1',3,3'-tetrahydro-1,1',3,3'-tetraoxo[5,5'-bi-2H-isoindole]-2,2'-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

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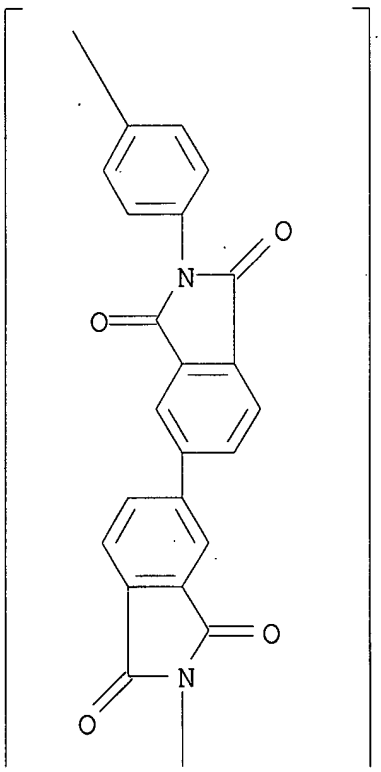

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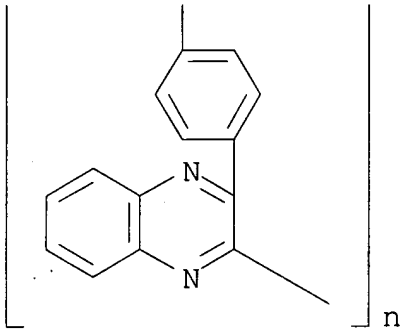
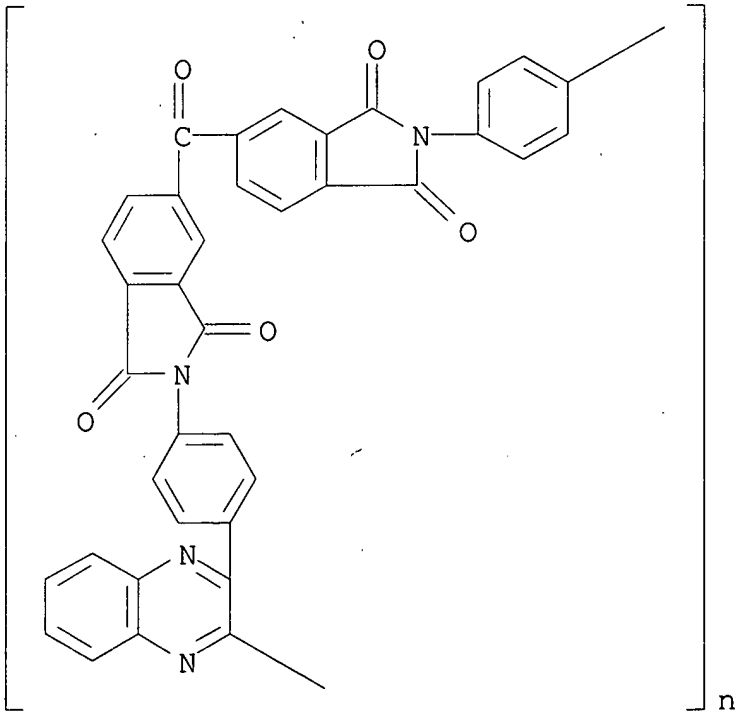


RN 131151-27-4 ZCAPLUS
CN Poly[2,3-quinoxalinediyl-1,4-phenylene(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonyl(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)
IT **131151-25-2P 131151-26-3P 131151-27-4P**

131159-97-2P 131160-00-4P 131160-03-7P 131174-80-6P
131174-81-7P 131174-82-8P 131174-83-9P 131174-84-0P
131174-85-1P
(prepn. and soly. and thermal stability of)